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Are Good Jobs Disappearing in Canada?

by René Morissette and Anick Johnson

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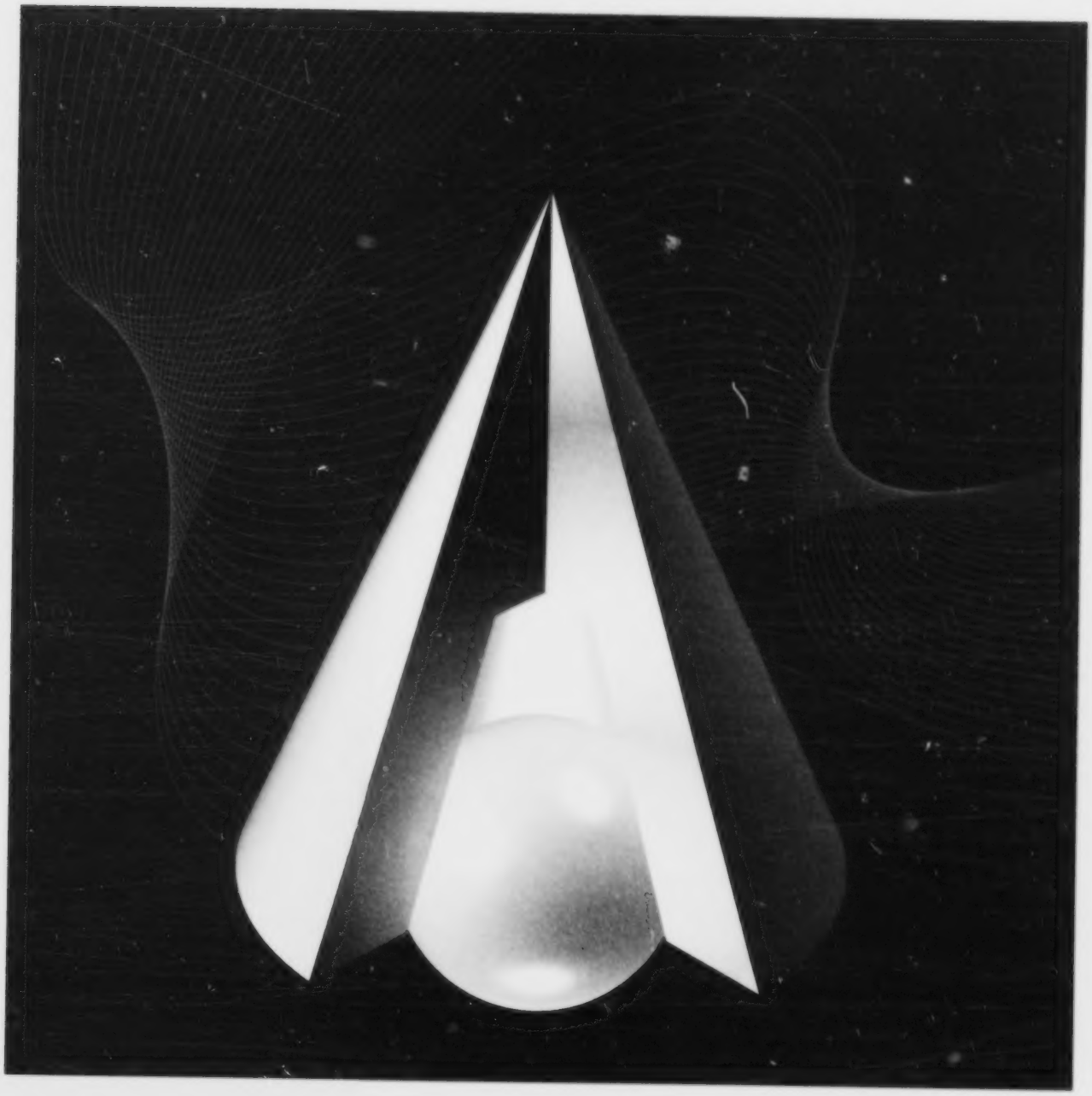

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Abstract

Using hourly wage data from the Labour Force Survey as well as previous household surveys covering the 1981-2004 period, we assess whether the relative importance of low-paid jobs and well-paid jobs has changed over the last two decades. Since it is unclear whether trends in wage levels obtained from all the aforementioned surveys are unbiased, we refrain from making definitive statements regarding the evolution of low-paid and well-paid jobs over the 1981-2004 period. When assessing whether well-paid jobs are disappearing in Canada, we focus our attention on recent trends, i.e. on changes in the fraction of jobs falling in certain (real) wage categories during the 1997-2004 period.

We find little evidence that the relative importance of well-paid jobs—however defined—has fallen over the last two decades or since the second half of the 1990s. We also find little evidence that the relative importance of low-paid jobs, those paying less than $10.00 per hour, has risen during these two periods. We show, along with numerous previous studies, that the wage gap between young workers and their older counterparts has risen substantially over the last two decades but that the wage gap between university graduates and other workers has shown little change. More important, we show that, *within* age groups, wages of newly hired male and female employees—those with *two* years of seniority or less—have fallen substantially relative to those of others. Second, in the private sector, the fraction of new employees employed in temporary jobs has risen substantially, increasing from 11% in 1989 to 21% in 2004. Among employees with *one* year of seniority or less, the incidence of temporary work rose from 14% in 1989 to 25% in 2004. Third, pension coverage has fallen among men of all ages and among females under 45. Taken together, these findings suggest that Canadian firms (existing or newly-born) have responded to growing competition within industries and from abroad by reducing their wage offers for new employees, by offering temporary jobs to a growing proportion of them and by offering less often pension plans that guarantee defined benefits at the time of retirement.

Keywords: Job quality; Low pay; Pension coverage; Outsourcing; Job precariousness.

I. Introduction

Concerns that international competition are driving jobs offshore are not recent. In the early 1980s, it was argued that many manufacturing jobs in advanced economies were being lost to developing countries, leaving behind a service sector polarized among a set of high wage "knowledge" jobs on the one hand and low wage personal service jobs on the other (Bluestone and Harrison, 1982). This phenomenon was referred to as de-industrialization.

Recently, a new version of the de-industrialization hypothesis has emerged. Some observers are suggesting that employers now use outsourcing abroad not only for manufacturing, but also for jobs in the service sector that have high skill requirements (Business Week, 2003, 2004). The rise of information and communication technologies combined with the availability of relatively skilled workers in fast-growing countries would now allow firms to contract out "intelligent" jobs in sectors such as engineering and informatics. Countries such as China, India and some in Eastern Europe would provide the skilled workforce required for these jobs, which generally pay high wages in OECD countries.

These changes in the behaviour of firms have potentially important implications for the type of jobs available to Canadian workers. One may argue that unless jobs affected by the new (and old) forms of outsourcing are replaced elsewhere in the Canadian economy by others providing similar wages, the fraction of well-paid jobs in Canada should decline over time.

An alternative view is that the new forms of outsourcing outlined above are fairly recent and thus are unlikely to affect a substantial fraction of Canadian jobs. If so, one would expect to see little change in the fraction of well-paid jobs during the past few years.

Other factors may have altered the proportion of well-paid jobs in Canada. Growing competition may have induced some firms to cut their labour costs by reducing wages. The decline in union density observed over the last two decades (Akyeampong, 2004) and the drop in the proportion of jobs coming from large firms (Statistics Canada, 2005) may also have affected pay rates.[1] Each of the three factors above may have tended to reduce the proportion of well-paid jobs. In contrast, skill-biased technological changes may have tended to increase the proportion of well-paid jobs.

This study assesses what actually happened, i.e., whether well-paid jobs have been disappearing in Canada in recent years.

Apart from the obvious implications it has for Canadians' living standards, governments' ability to collect personal income tax and finance social transfers, the analysis of trends in the relative importance of well-paid jobs is important for several reasons. Lack of well-paid jobs may restrict upward earnings mobility, increase families' difficulty of moving out of poverty, alter young individuals' decision regarding schooling and restrict households' ability to accumulate savings for precautionary motives.

Until recently, lack of comparable data on hourly wages precluded such analysis in Canada. As is well known, the Canadian Census and the Survey of Consumer Finances asked individuals how

[1] The proportion of jobs in firms with 500 or more employees dropped from 51% in 1983 to 42% in 2001.

many hours per week they had worked during the month of the survey (usually in April or May) while collecting information about the total earnings they had received in the previous year *from one or several jobs*. As a result, the Census and Survey of Consumer Finances could not be used to measure the hourly wage rates received by individuals *in a given job*. With the re-design of the Labour Force Survey, consistent data on hourly wages at the job level are now available since 1997.

We take advantage of this fact and examine how the fraction of jobs falling into certain wage categories has evolved during the 1997-2004 period. Furthermore, we assemble data from several household surveys that contain hourly wage data at the job level and that have been conducted since 1981. While these surveys do not necessarily provide a consistent time series of hourly wages—changes in wages that are obtained using these surveys may reflect real changes in pay rates as well as spurious changes resulting from the use of intrinsically distinct surveys—they allow us to analyze how *relative* wages of specific subgroups have evolved over the last two decades. For instance, they allow us to assess whether wages of newly hired employees have fallen relative to their counterparts who have greater seniority, a pattern that could signal important changes in the employer-employee relationship.

Assessing whether well-paid jobs are disappearing in Canada also implies studying the evolution of non-wage benefits over time. To do so, we use data from the Longitudinal Administrative Databank (LAD) and the Pension Plans in Canada Database (PPIC) of Statistics Canada and examine how workers' pension coverage, the most important of all non-wage benefits, has evolved over the last two decades.

In response to the growing competition they face within industries and from abroad, Canadian employers may seek greater flexibility in various ways. First, they may alter their wage offers for newly hired employees, a scenario we can investigate with the aforementioned surveys. Second, they may rely heavily on temporary jobs when hiring these new employees. To quantify the extent to which they have done so since the late 1980s, we combine the General Social Surveys of 1989 and 1994 with the re-designed Labour Force Survey. This allows us to document the evolution of the relative importance of temporary jobs among new employees during the 1989-2004 period.

It is important to emphasize that our main interest in this paper is to study the evolution of the relative importance of jobs that pay fairly well and of those that pay little in *real terms*, *not in relative terms*. Hence, our goal is *not* to analyze the evolution of hourly wage inequality.

Our main findings can be summarized as follows. First, we find little evidence that the relative importance of well-paid jobs—however defined—has fallen over the last two decades or since the second half of the 1990s. Second, we also find little evidence that the relative importance of low-paid jobs, those paying less than $10.00 per hour, has risen during these two periods. Third, we show, along with numerous previous studies, that the wage gap between workers under 35 and their older counterparts has risen substantially over the last two decades but that the wage gap between university graduates and other workers has shown little change. Fourth, and more important, we show that, *within* age groups, wages of newly hired male and female employees—those with *two* years of seniority or less—have fallen substantially relative to those of others. Fifth, in the private sector, the fraction of new employees employed in temporary jobs has risen

substantially, increasing from 11% in 1989 to 21% in 2004. Among employees with *one* year of seniority or less, the incidence of temporary work rose from 14% in 1989 to 25% in 2004. Sixth, pension coverage has fallen among males of all ages and among females under 45. Taken together, these last three findings suggest that Canadian firms (existing or newly-born) have responded to growing competition within industries and from abroad in at least three ways, i.e., by reducing their wage offers for new employees, by offering temporary jobs to a growing fraction of them and by reducing their propensity to offer defined-benefit pension plans.

II. Data

To study the evolution of the relative importance of low-paid jobs and well-paid jobs, we assemble data from a wide variety of household surveys: the Survey of Work History of 1981 (SWH), the Survey of Union Membership of 1984 (SUM), the Labour Market Activity Surveys of 1986-1990 (LMAS) and the Labour Force Surveys of 1997-2004. All these surveys cover the same population, are based on the Labour Force Survey sample design and contain information on hourly wages received in the main job held by paid workers.[2]

In all these surveys, the information on hourly wages is obtained by dividing the job-specific earnings reported by respondents for a given time interval (e.g., one week, one month, one year) by the number of hours worked during this time interval. The question asked to obtain information about respondents' earnings refers to the "usual wage or salary before taxes and other deductions". However, as Appendix 1 shows, some surveys use different earnings concepts or different hours concepts. For instance, the Labour Force Survey explicitly includes tips and commissions in the calculation of earnings and explicitly excludes overtime in the calculation of workhours. In contrast, all surveys prior to 1987 make no explicit reference to tips and commissions when calculating earnings and make no explicit reference to overtime in the calculation of work hours.

Combined with the fact that these surveys differ in terms of the length of their questionnaire, their structure (LFS is a cross-sectional survey, LMAS is a longitudinal survey that yields, among other things, cross-sectional data) and the procedures used to impute wages and detect outliers, these differences probably explain why Canadian labour economists have refrained so far from combining them to produce a time series of hourly wages in Canada.[3] While a few studies have combined SWH and LMAS to analyze trends in wage inequality (Doiron and Barrett, 1996; Dinardo and Lemieux, 1997; Morissette, Myles and Picot, 1994), none have combined them to assess trends in wage levels.[4]

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2. The main job is the job that involves the greatest number of workhours per week.

3. For instance, the Labour Market Activity Survey of 1989 imputes wages (excluding overtime pay) based on the following vector of covariates: a) class of worker, b) province, c) sex, d) age group, e) education level and, f) union status. In contrast, the Labour Force Survey includes the first five covariates defined above as well as the following covariates: student status, a renter/houseowner indicator, and occupation. LFS does not use union status to impute wages.

4. Picot, Myles and Wannell (1990) use the Survey of Work History of 1981 and the Labour Market Activity Survey of 1986 to examine how the proportion of jobs below or above a certain distance from the *median* has varied between 1981 and 1986. Thus, they do not examine how the fraction of jobs paying, say, between $10.00 and $14.99 (in constant dollars) has evolved during this period.

Since it is unclear whether trends in wage levels obtained from all the aforementioned surveys are unbiased, we refrain from making definitive statements regarding the evolution of low-paid, middle-paid and highly paid jobs over the 1981-2004 period. When assessing whether well-paid jobs are disappearing in Canada, we focus our attention on recent trends, i.e., on changes in the fraction of jobs falling in certain (real) wage categories during the 1997-2004 period. We do so using the Labour Force Survey, which provides consistent hourly wage data at the job level since 1997.

We select two samples. The first consists of all individuals aged 17 to 64 who are employed as paid workers in the main job they hold in May.[5] In order to be as inclusive as possible and provide measures of job quality for all Canadians involved in the labour market, this sample includes full-time students as well as other individuals. The second sample consists of individuals aged 25 to 64 and is aimed at measuring the evolution of wages for individuals who have completed their school-to-work transition. Since the Survey of Work History of 1981 contains no indicator for student status, this sample excludes individuals under 25 in order to omit (most) full-time students. Depending on the year considered, the first sample includes between 34,000 and 52,000 observations while the second sample consists of 26,000 to 43,000 observations.

To examine the evolution of the relative importance of low-paid jobs and well-paid jobs, we classify jobs into eight categories: those paying less than $8.00 (2001 dollars), $8.00 to $9.99, $10.00 to $14.99, $15.00 to $19.99, $20.00 to $24.99, $25.00 to $29.99, $30.00 to $34.99, and those paying $35.00 or more. Assuming 2,000 hours of work per year, the lower bound is associated with a job paying annual wages of (almost) $16,000, which is close to the low-income cutoff (before tax) for a single person living in an urban area consisting of either 30,000 to 99,999 residents ($16,048) or of 100,000 to 499,999 residents ($16,160).[6] The upper bound implies a job paying at least $70,000 per year.

To assess the extent to which temporary jobs have become more frequent among newly hired employees, we combine the General Social Surveys (GSS) of 1989 and 1994 with the re-designed Labour Force Survey. The target population for the 1989 GSS and the 1994 GSS consists of all persons aged 15 and over living in the ten provinces, except persons residing full-time in institutions. When combined with the LFS from 1997 to 2004, these two surveys allow us to study the evolution of the incidence of temporary jobs during the 1989-2004 period.

III. Hourly wages, 1981-2004

We assemble all aforementioned surveys and show the evolution of median wages over the 1981-2004 period in Table 1. Even though they display some year-to-year variation, median wages have, in the aggregate, trended neither upwards nor downwards over the last two decades or in recent years. They have been stagnating for both samples. This constancy in overall median

5. Since the Survey of Union Membership of 1984 has been conducted in December, statistics for this year refer to individuals aged 17 to 64 who were employed as paid workers in the main job they held in December.

6. See "Low-income cutoffs from 1994-2003 and low-income measures from 1992-2001", Statistics Canada, Catalogue no. 75F0002MIE – No. 002.

wages masks a small decline in men's wages and a sizable increase in women's wages, a pattern that is consistent with the narrowing of the male-female earnings gap documented by Baker et al. (1995).

How has the relative importance of low-paid and well-paid jobs evolved over the last two decades? For both samples, the various surveys suggest that very moderate changes took place between 1981 and 2004. In fact, a visual inspection of each of the wage categories allows us to detect only two *trends* over the last two decades. First, for both samples, the fraction of jobs paying $30.00 or more appears to have risen by two to three percentage points since the early or mid-1980s (Table 2). Second, during this period, the proportion of jobs paying less than $8.00 per hour seems to have dropped by two percentage points among individuals aged 25 to 64.[7] These two patterns are confirmed by the kernel density estimates of (log) hourly wages for 1981 and 2004 (Figures 1 and 2).[8,9]

However, the kernel density functions for employees aged 17 to 64 add some nuance to the numbers shown in Table 2: they suggest that the fraction of jobs paying between $6.00 (log wages = 1.79) and $10.00 (log wages = 2.30) per hour rose between 1981 and 2004 while the fraction of jobs paying less than $6.00 per hour fell. As a result, the fraction of jobs paying less than $10.00 per hour rose slightly during this period: it increased by about one percentage point

When we restrict our attention to data from the Labour Force Survey, three trends emerge from the data. For both samples, the fraction of jobs paying $20.00 to $24.99 fell by about two percentage points between 1997 and 2004. Meanwhile, the proportion of jobs paying $25.00 to $29.99 rose by about one percentage point while the percentage of jobs offering $35.00 or more grew by about 1.5 percentage point.[10,11]

Given the recent interest in low-paid employment (e.g., Maxwell, 2002), it is worth checking whether a growing fraction of employees hold jobs with relatively low pay rates. There is no evidence that the relative importance of low-paid jobs—those paying less than $10 per hour—has

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7. Numbers are presented separately for men and women in Appendix 2. Consistent with the increase in women's median hourly wages shown in Table 1, they reveal that, during the 1981-2004 period, women have been increasingly employed in jobs paying $20.00 or more.

8. The first pattern emerges clearly for both samples: the density function for 2004 lies above that of 1981 when log wages exceed roughly 3.25, i.e., when hourly wages exceed $25.79 (Figures 1 and 2). The second pattern can be seen by noting that, for employees aged 25 to 64, the density function of 2004 lies below that of 1981 at log wages <= 2.0, i.e., when hourly wages are below $7.39 (Figure 2).

9. The kernel densities shown in Figures 1 and 2 are based on the Gaussian functional form and on an optimal band with. See Silverman (1986) for details.

10. All these changes are statistically significant at conventional levels.

11. Between 1997 and 2004, the proportions of jobs paying between $10.00 and $14.99 has risen by 0.9 percentage point and the proportion of jobs paying between $15.00 to $19.99 has dropped by 1.9 percentage point. However, these proportions have remained virtually unchanged between 1997 and 2003, thereby casting doubt on the presence of specific *trends* in the wage categories.

increased in recent years. Sixteen percent of individuals aged 25 to 64 held these jobs in 1997 as well as in 2004. The corresponding number for individuals aged 17 to 64 is 24%.[12]

In sum, consistent hourly wage data from the Labour Force Survey do not support the contention that well-paid jobs have been disappearing in Canada since the late 1990s. At the aggregate level, most of the changes observed in recent years have taken place in the top third of the wage distribution. Specifically, jobs paying $20.00 to $24.99 per hour have become less important while those paying $25.00 or more have seen their relative importance rise.[13]

Of course, the fact that the relative importance of low-paid and well-paid jobs did not vary much over the last two decades does not imply that the earnings structure has remained unchanged. As numerous studies have shown (Morissette, Myles and Picot, 1994; Beach and Slotsve, 1996), earnings of young workers have dropped substantially relative to those of older workers during the 1980s, a pattern clearly reproduced in the hourly wage data shown in Figure 3. As a result, the percentage of men and women under 35 who are employed in low-paid jobs—those paying paying less than $10.00 per hour—has grown while the percentage of men and women aged 35 and over who are employed in jobs paying $25.00 per hour or more has also increased (Figure 4).

Given that the percentage of young males employed in jobs paying less than $10.00 per hour has risen, the fact that the incidence of low-paid jobs has changed little over the last two decades may appear puzzling. This apparent paradox can be resolved simply. The percentage of low-paid jobs has changed little over the last two decades because groups who have experienced growing risks of being in low-paid jobs have seen their relative importance in the workforce drop while those who have seen their chances of being in low-paid jobs decrease have become relatively more important. For instance, while the incidence of low pay among males aged 17 to 24 has increased from 48% in 1986 to 60% in 2004, this group accounted for only 8% of all employees in 2004, down from 10% in 1986 (Appendix 3). Conversely, while the incidence of low pay among women aged 35 and over has decreased between 1986 and 2004, this group accounted for a larger share of the employed population in 2004 than it did in 1986. As a result, the percentage of jobs paying less than $10.00 per hour has remained virtually constant at 24% between 1986 and 2004.

While median hourly wages of various age groups have changed substantially over the last two decades, median hourly wages of university graduates and of non-university graduates have evolved in a similar fashion between 1981 and 1997.[14] This pattern is observed both in the

12. The careful reader will have noticed that the fraction of jobs paying $8.00-9.99 fell between 2000 and 2001 and then rose between 2001 and 2002. This pattern is due to heaping, i.e., the tendency of respondents to report wages at integer values (e.g., $10.00). To ensure the robustness of our conclusion regarding the evolution of the fraction of low-paid jobs between 1997 and 2004, we recalculated the numbers based on two alternative wage categories: a) $8.00-$10.33 and b) $8.00-$10.67. Under these two alternatives, the fraction of low-paid jobs (those paying less than $10.33 or less than $10.67) rose by at most 0.7 percentage point (from 24.9% to 25.6%) between 1997 and 2004, thereby confirming that there is little evidence that the fraction of low-paid jobs rose in recent years.

13. These conclusions hold when jobs are weighted by their weekly hours.

14. Changes in the coding of the LFS education question in the early 1990s imply that we can control only broadly for educational attainment by distinguishing university graduates from other individuals.

aggregate (Figures 5a and 5b) and for men and women of various ages (Figures 5c, 5d, 6a-6d).[15] During the 1981-2004 period, the wage gap between university graduates and non-university graduates appears to have widened only for males aged 25-34 and for those males aged 45-64 (Figures 5c and 6c). Furthermore, it did so only after 1997.[16]

IV. Trends by industry, 1997-2004

While there is no evidence that well-paid jobs have, in the aggregate, disappeared since 1997, they may well have been disappearing in some industries. For instance, growing competition within industries and from abroad may have led some manufacturing firms to reduce wages. Other businesses operating in highly skilled services such as engineering and informatics may have done the same. We assess whether this is the case in Tables 3 to 6. First, we show indexed median hourly wages—i.e., median wages set to 100.0 in 1997—in six major industrial groups.[17] Then, we examine potential changes in the wage distribution within these industries.

For both samples, median hourly wages remained virtually unchanged in manufacturing between 1997 and 2003. They varied by less than one percentage point on a year-to-year basis but displayed no specific trend during this period (Table 3). They dropped slightly between 2003 and 2004. In contrast, median hourly wages in highly skilled services *rose* by three to four percentage points between 1997 and 2004. Hence, trends in median wages provide little evidence that the relative importance of well-paid jobs has shrunk in these two sectors since the late 1990s.

Table 4 confirms this view. Between 1997-1998 and 2003-2004, the fraction of manufacturing jobs paying $20.00 to $24.99 per hour fell by four percentage points but the fraction of manufacturing jobs paying $25.00 or more rose by three percentage points. In highly skilled services, the relative importance of jobs paying between $25.00 or more rose by roughly three percentage points.

In both of these sectors, the relative importance of jobs paying less than $10.00 per hour did not increase. However, the fraction of manufacturing jobs paying between $10.00 and $14.99 rose by about four percentage points. Hence, the growing fraction of manufacturing jobs paying either

15. It is consistent with the findings of Burbidge, Magee and Robb (2002), who examine median weekly earnings of full-time workers, using data from the Survey of Consumer Finances.

16. It is important to emphasize that these patterns do not imply that the wage gap between university graduates and *high school graduates* has not widened. Using Census data, Morissette, Ostrovsky and Picot (2004) show that, between 1980 and 2000, the university-high school earnings ratio did rise for young men and women employed in the private sector.

17. The six major industrial groupings are: primary industries and construction, manufacturing, highly skilled services, low-skilled services, wholesale trade and other services, and public services. Highly skilled services include the following industries (NAICS 1997): transportation and warehousing, (48-49) information and cultural industries (51), finance and insurance (52), real estate, rental and leasing (53), professional, scientific and technical services (54), management of companies and enterprises (55), administrative and support, waste management and remediation services (56). Low-skilled services include retail trade (44-45) and accommodation and food services (72). During the 1997-2004 period, the distribution of employment across major industrial groupings was the following for individuals aged 17 to 64: primary industries and construction (8.4%), manufacturing (17.2%), highly skilled services (21.9%), low-skilled services (18.8%), wholesale trade and other services (11.0%), public services (22.7%).

$10.00-$14.99 or $25.00 or more suggests that the relative importance of jobs with relatively high pay and relatively low pay may be increasing in manufacturing.

While workers employed in manufacturing and highly skilled services do not appear to have suffered widespread declines in pay rates, those employed in low-skilled services, an industry with low union density, may have done so. The evidence supporting this conjecture is mixed. One reason is that, among employees aged 25 to 64, median wages in this sector were almost identical in 1997 and 2004 (Table 3). Second, among individuals aged 17 to 64, median wages were fairly similar in 1997 and 2003 before dropping by two percentage points between 2003 and 2004. In fact, the evidence suggests that the relative importance of low-paid jobs has increased in this sector in recent years. Between 1997-1998 and 2003-2004, the proportion of jobs paying less than $10.00 per hour rose by about 3 percentage points (Table 5).

Pay rates did not deteriorate in wholesale trade and other services either. In this sector, the fraction of jobs paying less than $20.00 fell by about four percentage points. In contrast, the fraction of jobs paying $25.00 or more rose at least four percentage points.

In primary industries and construction, the relative importance of jobs paying less than $10.00 per hour did not increase (Table 6). For both samples, the fraction of jobs paying $20.00-$24.99 appears to have fallen slightly but the fraction of jobs paying $25.00 or more appears to have increased by two or three percentage points.

Taken together, these findings confirm that the Canadian economy has not witnessed a deterioration in the relative importance of well-paid jobs since 1997. Likewise, there has not been a *widespread* increase in the relative importance of low-paid jobs since then. Jobs paying less than $10 per hour have become more important only in low-skilled services.

V. Wages of newly hired employees

While the analysis of the overall distribution of real wages provides useful information about the quality of the *stock* of jobs held by Canadian employees at a given point in time, it is not best suited for detecting changes in the wages firms offer workers when *new positions* become available (as a result of quits and/or firm expansion). Apart from the well-known changes in the age-wage structure shown above, the fact that the relative importance of low-paid jobs and well-paid jobs has changed little since the early 1980s or the late 1990s could mask two offsetting trends: falling wages among newly hired employees and increasing wages among those with greater seniority.

Analyzing the evolution of wages of newly hired employees is important since changes in wage offers for new hires are an important channel through which Canadian firms may respond to growing competition within industries and from abroad. More intense competition on the product market could induce some companies to reduce their labour costs by cutting the wages offered to newly hired employees, while maintaining or increasing wages of workers with greater seniority. Such changes may indicate fundamental changes in the employer-employee relationship that could affect the quality of Canadian jobs in the years ahead.

To assess whether wages of newly hired employees have evolved differently compared to those of their counterparts with greater seniority, we restrict our attention to employees aged 25 to 64. We do so in order to exclude (most) individuals who are attending school full-time and thus, who have not completed their school-to-work transition.

Have wages of newly hired employees evolved differently compared to those of other workers during the 1981-2004 period? The answer is yes. When combined, all aforementioned surveys suggest that median hourly wages of male and female employees with two years of seniority or less fell substantially relative to those of other employees. Among men aged 25 to 64, median wages of newly hired workers appear to have dropped 13% between 1981 and 2004. In contrast, median wages of their counterparts with more than two years of seniority were, in 2004, four percentage points higher than their 1981 value (Figure 7a). As a result, the wage gap between newly hired males and other males has risen substantially over the last two decades. The gap also widened among women as median wages of newly hired females fell about 2% while those of other women rose 14% (Figure 8a).

V.1 Robustness checks

As pointed out above, the surveys used to generate these trends (SWH, SUM, LMAS and LFS) might generate spurious changes in wage *levels*. Yet they will produce unbiased trends in *relative* wages *if* these spurious changes—if they were to occur—affect newly hired employees and those with greater seniority in a similar manner. Admittedly, it is difficult to verify whether this condition is satisfied or not. However, we can gain greater confidence that the drop in relative wages of newly hired workers shown in Figures 7a and 8a is not a statistical artifact by examining whether the widening gap between newly hired employees and other employees that are obtained from the aforementioned surveys is also observed in other data sources.

To do so, we take advantage of the fact that the Survey of Consumer Finances (SCF) contain, for the 1981-1997 period, consistent microdata on workers' annual wages and salaries, weeks worked during the reference year as well as seniority with the employer and hours worked during the month of the survey. Since SCF was conducted in April or May of each year, we can define newly hired employees as those who reported having 16 to 24 months of seniority during the month they were interviewed. By requiring that workers have at least 16 months of seniority as of the time of the interview, we maximize the likelihood that the total annual wages and salaries they report for the reference year, i.e., the year preceding the interview, are associated with a *single job*. For workers not involved in multiple job holding—i.e., for more than 90% of all employees—this criteria rules out the possibility that the annual wages and salaries reported are the sum of wages received in *different jobs held one after the other* during the reference year. [18] Requiring that these workers have at most 24 months of seniority allows us to measure earnings of individuals who have been hired fairly recently while ensuring a reasonable sample size. Following Johnson and Kuhn (2004), we construct hourly wages by dividing the annual wages and salaries received by workers in the previous year by the number of weeks they worked during

18. Annual wages and salaries reported for the reference year will be associated with more than one job only if workers held several jobs at a given point in time during that year. Since multiple job holding affected at most 6% of employed individuals between 1981 and 1997 (Sussman, 1998), this limitation is unlikely to affect our results.

the previous year times the number of hours they work during the month of the survey.[19] We then compare trends in the resulting hourly wages with those derived from the special surveys used above.

Table 7 presents the results of this comparison. Both data sources indicate that median wages of newly hired men and women fell between 1981 and 1986.[20] However, the drop observed is less pronounced using SWH-LMAS than using SCF. For instance, SWH-LMAS suggest that wages of newly hired men (women) fell by three (two) percentage points between these two years while SCF shows a drop of ten (six) percentage points.

Trends for the second half of the 1980s are more similar, presumably because they involve only LMAS, on the one hand, and SCF on the other. Both LMAS and SCF suggest that median wages of newly hired men and women rose between 1986 and 1990. The increase amounted to 5-8 percentage points for men and 6-7 percentage points for women and suggests that wages of new entrants are procyclical. Furthermore, both surveys show that median wages of other men stagnated during this period.

The possibility of spurious changes in wage levels is highlighted by comparing changes in median wages resulting from LMAS-LFS to those resulting from SCF. LMAS-LFS suggest that median wages of newly hired men fell by 16 percentage points between 1990 and 1997. In contrast, SCF suggests that the drop amounted to only 9 percentage points. Likewise, LMAS-LFS suggest that wages of newly hired women fell by eight percentage points while SCF suggests that they rose slightly.

Clearly, the numbers above suggest that transitions from SWH to LMAS and those from LMAS to LFS might involve spurious changes in median wages. However, whether they are spurious or not, these changes often operate in opposite directions. Using SCF as a benchmark, combining SWH to LMAS produces higher growth rates of wages for newly hired employees but combining LMAS to LFS produces lower growth rates. For newly hired men, the two potential "biases" almost cancel out. As a result, whether we use SCF or combine SWH and LFS, we find that median wages of newly hired males fell between 12% and 14% between 1981 and 1997.

Most important, both SCF and the special surveys used in this study indicate that the earnings gap between newly hired employees and other employees widened between 1981 and 1997. The aforementioned special surveys suggest that median wages of newly hired males (females) grew 17 (14) percentage points less than those of other males (females) between these two years. The corresponding numbers from SCF are 11 and 6 percentage points for men and women, respectively. These similar qualitative patterns, observed in both data sources, provide strong evidence that the drop in relative wages of newly hired workers shown in Figures 7a and 8a is *not* a statistical artifact.

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19. Individuals with any self-employment income during the reference year are excluded from the construction of our SCF sample of newly hired employees.

20. Data from the 1984 Survey of Union Membership cannot be used for this comparison since this survey does not include seniority as a continuous variable. In this survey, seniority is measured with the following categories: 6 months or less, 7-12 months, 13-60 months, 61-120 months, 121-240 months and more than 240 months.

V.2 Compositional effects

As was shown above, earnings of young workers have dropped relative to those of their older counterparts during the 1980s. Since labour turnover is much higher among young workers than among older ones, the drop in relative wages of newly hired employees shown above could simply result from the widening of the age-earnings differential.

The data do not support this contention because relative wages of newly hired workers generally fell *within* age groups. For instance, whatever age group is considered, median wages of newly hired males grew at least ten percentage points less than those of their counterparts with greater seniority during the 1981-2004 period (Figures 7b-c-d). Furthermore, median wages of newly hired women aged 45 to 64 grew by at least 25 percentage points less than those of women with more than two years of seniority (Figure 8d). The only exception is found among women aged 25 to 34, where wages of new employees and those of other employees displayed very similar growth rates between 1981 and 2004 (Figure 8b).

While newly hired workers, both young and older, generally suffered a decline in their wages relative to their counterparts with greater seniority, the same qualitative pattern was observed among university graduates and non-university graduates (Figure 9). Furthermore, the drop in relative wages of new employees took place both in manufacturing and in other sectors (Figure 10). In fact, the data suggest that real wages of newly hired males employed in manufacturing fell 19% between 1981 and 2004.

What factors underlie the drop in relative wages of newly hired employees? To answer this question, a natural avenue is to assess whether the composition of newly hired workers has changed in ways that tend to depress their wages relative to those of other workers. To examine whether this is the case or not, we present selected characteristics of newly hired employees and other employees in 1981 and 1998, the last year for which LFS has occupation (SOC 1980) and industry (SIC 1980) codes that are comparable to those in SWH.

Indeed, compositional effects appear to have played a role. First, relative union coverage of newly hired employees fell drastically between 1981 and 1998. For instance, union density among newly hired men fell from 38% in 1981 to 18% in 1998 (Table 8). In contrast, union density among other males dropped by only six percentage points (from 48% to 42%). Union coverage of newly hired women also fell substantially while that of other women rose slightly. [21]

Second, the proportion of full-time workers fell slightly among newly hired males while showing little change among others. Third, the proportion of women employed in public services fell by

21. To assess the extent to which the drop in union coverage of new employees was due to compositional effects, we pooled the 1981 and 1998 data and ran a linear probability model of union coverage. The model was estimated for new male and new female employees separately. The vector of covariates used included all variables listed in Table 8, except (log) wages. The results indicate that after controlling, for age, education, full-time status, industry, occupation and seniority, the decline in union coverage among new male employees between 1981 and 1998 amounts to 16 percentage points, i.e., 80% of the decline observed in the raw data. For women, the decline in union coverage amounts to seven percentage points, i.e., 60% of the drop observed in the raw data. Hence, most of the decline in union coverage observed among new employees persists after controlling for compositional effects.

nine percentage points among newly hired females but rose by six percentage points among other women. Meanwhile, median log wages of newly hired men and women grew 19-20 percentage points less than those of their counterparts with greater seniority.

To quantify the effect of these changes in the composition of newly hired workers and of other workers, we pool the data for 1981 and 1998 and estimate median log wage equations that include a new employee indicator (= 1 for an employee with 1-24 months of seniority, 0 otherwise), a binary indicator for the year 1998 (1981 being the reference year) as well as an interaction term between the two indicators (In_81-98). This interaction term simply measures the extent to which (log) wages of newly hired employees have grown less than those of other employees between 1981 and 1998. We also include, apart from these variables, controls for age (4 categories; 25 to 34, 35 to 44, 45 to 54 and 55 to 64), education (university graduate, non-university graduate), union status, part-time status, industry (8 major industrial groups) and occupation (8 major occupational groups).[22] These variables represent the full set of controls.

We also estimate models that contain, apart from the new employee indicator, the binary indicator for the year 1998 and the variable In_81-98, a limited set of controls X. One group of models attempts to control only for the influence of factors related to labour supply and thus includes only age and education in X. The other group of models attempts to control for other influences (e.g., variables related to labour demand and institutions such as unions) and includes union status, part-time status, industry and occupation in X. We run separate regressions for men and women aged 25 to 64, 25 to 44 and 45 to 64, thereby estimating 18 distinct models (3 specifications for each of the six age-gender groups).

Table 9 shows the results. The first line shows the value of In_81-98 with no controls, i.e. the extent to which median (log) wages of newly hired workers have grown less than those of other workers between 1981 and 1998. It indicates, for instance, that median log wages of newly hired men aged 45 to 64 grew 15 points less than those of their counterparts with greater seniority during this period.

Is the widening gap between new employees and others *simply* due to compositional effects? The answer is clearly no. Among men aged 25-64, the value of In_81-98 drops from -0.187 to -0.147 when the full set of control variables are added, thereby indicating that compositional effects explain slightly more than one-fifth of the drop in relative wages of new employees in this sample (Table 9). Among subsamples of men aged 25 to 44 or aged 45 to 64, compositional effects explain a lower portion of the widening wage gap. Whatever sample is considered, compositional effects account for no more than one half of the drop in relative wages experienced by new female employees.

For all age-gender groups considered except men aged 45 to 64, models that include only controls for age and education explain a smaller share of the drop in relative wages of new

22. We use discrete age categories since the Survey of Work History of 1981 does not include age as a continuous variable. As mentioned above, changes in the coding of the LFS education question in the early 1990s imply that we can control only broadly for educational attainment by distinguishing university graduates from other individuals. The indicator for union coverage equals 1 if a person is member of a union (or is not member of a union but is covered by a collective agreement), 0 otherwise.

employees than models that control for variables related to labour demand and institutional changes. This can be seen by noting that the value of In_81-98 generally falls less with the former type of models than with the latter. This finding implies that, in general, variables related to labour demand and institutional changes contributed more to widen the wage gap between new employees and others than labour supply-related variables did.[23]

In sum, while changes in personal attributes and job characteristics clearly contributed to the decline in the relative wages of newly hired employees over the last two decades, a substantial portion of this decline persists even after controlling for these changes, especially for males. In other words, relative wages of newly hired employees fell within cells defined jointly in terms of age, education, union status, industry and occupation, thereby suggesting that Canadian employers decreased their wage offers for new applicants.

VI. Changes in the age-wage profile of new entrants

These declines in the wage offers for new applicants have been associated with important changes in the age-wage profile of labour market entrants.[24] Among males, successive cohorts of labour market entrants—as proxied by men aged 25 to 34—have seen their wages at entry decline between the early 1980s and the late 1990s. Between 1981 and 1999—years during which the unemployment rate stood at 7.5% and 7.6%, respectively—median wages of men aged 25 to 34 fell by about 14 percentage points (Table 10, Panel I).[25] Entry wages of young males stopped falling after 1999. Consistent with the findings of Beaudry and Green (2000), entry wages of young males have been falling both for university graduates as well as non-university graduates, at least until 1997.

Have the age-earnings profiles of successive cohorts become steeper over time? There is no unique answer to this question. For the 1989 cohort with no university degree, the answer is clearly no. Between 1989 and 1999, members of this cohort have seen their median wages increase by eight percentage points, no more than the 10-point increase experienced by the 1981 cohort between 1981 and 1988 (Table 10, Panel II).[26] This suggests that, compared to the 1981

23. One could argue that changes in unmeasured worker quality may have contributed to widening the wage gap between new employees and others. This could occur if a greater fraction of low-ability workers had been drawn into the labour market in 1998 than in 1981. Simple statistics on the evolution of male employment rates do not support this view. In 1998, the employment rate of men aged 25 to 54 was, at 84.4%, no higher than the rate of 89.7% observed in 1981. Thus, it seems unlikely that the widening of the wage gap between new employees and others resulted from the entry of workers with low unmeasured quality.

24. The goal of this section is simply to provide descriptive evidence on the evolution of the age-wage profiles of successive cohorts of labour market entrants over the last two decades. Assessing the extent to which changes in the age-wage profiles of successive cohorts of labour market entrants are due to factors that are specific to a given birth cohort, cyclical effects, longer term trends and declines in wage offers for newly hired employees is beyond the scope of this paper. For an econometric analysis that performs this task for the 1981-1998 period, see Townsend and Green (2002).

25. This can be seen by noting that median log wages of this group were equal to 2.77 in 1999, down from 2.91 in 1981 (Table 10, Panel I).

26. The Canadian unemployment rate was fairly similar across all these years. It amounted to 7.5% in 1981, 7.8% in 1988, 7.5% in 1989 and 7.6% in 1999.

cohort, the 1989 cohort has been experiencing a lower but not steeper age-wage profile. In contrast, members of the 1997 cohort have seen their median wages increase by 13 percentage points between 1997 and 2004, slightly more than the increase registered by the 1981 cohort between 1981 and 1988. Likewise, university graduates belonging to the 1997 cohort have enjoyed a 23-point increase in their median wages between 1997 and 2004, slightly more than the 19-point increase experienced by the 1981 cohort between 1981 and 1988 (Table 10, Panel III).

Some evidence of a steepening of the age-wage profile of male entrants can be found by examining the median wages of the 1989 cohort of university graduates 15 years after entry, i.e. in 2004. During the 1989-2004 period, members of this cohort have experienced a 35-point increase in median (log) wages, much more than the 27-point increase registered by the 1981 cohort between 1981 and 1997.[27] As a result, their median wages in 2004 fully converged to those of the 1981 cohort in 1997. However, this pattern of full convergence is not observed among members of the 1989 cohort who had no university degree. Contrary to their counterparts with a university degree, these individuals still had, by 2004, lower wages than the 1981 cohort had in 1997.

Changes in the age-wage profile were less pronounced among young women. Even though there is some evidence that entry wages fell between 1981 and 1989 (especially for university graduates), members of the 1989 cohort had, by 2004, roughly the same wages as those of the 1981 cohort in 1997 (Table 11). This was true both for women with a university degree as well as others.

VII. Temporary jobs

Canadian employers may have responded to their changing environment not only by reducing their wage offers for new employees, but also by offering temporary jobs to an increasing fraction of them. Among men and women aged 25 to 64 and employed in the private sector (defined here as all industries except public administration), the incidence of temporary employment rose from 5% in 1989 to 9% in 2004 (Table 12).[28] However, these numbers include permanent jobs that have been held for several years by key employees in the workplace. To avoid affecting morale and productivity, most firms will be reluctant to convert these jobs into temporary jobs. As a result, focusing on aggregate statistics will understate the extent to which firms have made adjustments through the use of temporary work.

To get a sense of the extent to which firms have adjusted to their changing environment through the use of temporary work, a more meaningful exercise is to look at the evolution of the incidence of temporary jobs among newly hired employees. Doing so shows that in 1989, 11% of newly hired employees held temporary jobs. By 2004, 21% of all jobs held by recently hired employees were temporary jobs. Hence, when measured among the subset of newly hired employees, temporary employment in the private sector rose by 10 percentage points, i.e., more

27. Since the unemployment rate was higher in 1997 (9.1%) than it has been so far in 2004 (varying between 7.0% and 7.5%), the stronger wage growth experienced by the 1989 cohort could partly reflect a cyclical effect, rather than a steepening of the age-wage profile.

28. Since the 1989 GSS, 1994 GSS and the LFS 1997-2004 allow us to distinguish full-time students from other individuals, the sample used in Table 12 consists of employees aged 25 to 64 who are not full-time students.

than twice the increase observed for all private sector employees. Among employees with one year of seniority or less, the incidence of temporary work rose from 14% in 1989 to 25% in 2004 (Appendix 4).

For the economy as a whole, the incidence of temporary employment among newly hired employees rose from 12% in 1989 to 22% in 2004. The increase was widespread. It affected full-time jobs, unionized and non-unionized workers, individuals aged 25 to 34 as well as their older counterparts, men and women, and university graduates as well as other individuals.[29,30]

Hence, the fact that the fraction of low-paid jobs and well-paid jobs did not change much over the last two decades hides two important patterns: a) falling relative wages and, b) sharp increases in the incidence of temporary employment among newly hired employees.[31]

VIII. Pension coverage

The total compensation that Canadian employees receive for their work includes, apart from wages, various benefits such as dental plans, life insurance plans and supplemental medical insurance plans. Employer-sponsored retirement plans, which include registered pension plans (RPPs), group RRSPs and deferred profit sharing plans, are another key component of total compensation. In order to assess whether the relative importance of well-paid jobs has fallen over time, one would ideally compute the value of the various non-wage benefits associated with different jobs. Unfortunately, data limitations limit our ability: a) to attach a monetary value to these non-wage benefits and, b) to examine the evolution of employee's coverage by various non-wage benefits.

Nevertheless, existing data allow us to examine the evolution of employees' coverage by registered pension plans (RPPs) over the last two decades. Data from the Pension Plans in Canada (PPIC) Database show that the fraction of employees covered by a RPP has fallen by six percentage points since the early 1980s, dropping from 47% in 1981 to 41% in 2000. Men have seen their RPP coverage drop by more than ten percentage points while women have enjoyed a moderate increase in RPP coverage (Figure 11).

How has RPP coverage evolved across age groups? Since PPIC contains no information on age, we turn to the Longitudinal Administrative Databank (LAD) to answer this question. We do so using two measures of pension coverage: 1) the percentage of tax filers who participate in a contributory RPP and, 2) the percentage of tax filers who participate in a (contributory or non-

29. Data not shown indicate that the increase in temporary employment among newly hired employees was even greater for individuals aged 17 to 24. In 2004, fully 32% of newly hired employees aged 17 to 24 (who were not full-time students) held a temporary job, almost three times the rate of 11% observed in 1989.

30. All these qualitative conclusions hold when we define newly hired employees as those who have one year of seniority or less. See Appendix 4.

31. Since the 1989 GSS contains no data on hourly wages, it is impossible to assess the extent to which the decrease in relative wages of newly hired employees during the 1989-2004 period is due to the growing incidence of temporary employment.

contributory) RPP.[32] The first measure, which covers roughly three-quarters of all RPP members, is available since 1986 and is shown in Table 13. The second measure is available only since 1991 and is shown in Table 14.[33]

The percentage of male tax filers contributing to a RPP fell substantially in most age groups since 1986. It dropped by between 7 and 12 points among men aged 25 to 64 (Table 13). In contrast, it rose slightly for women aged 45 to 54 while falling by three percentage points or less for other women. As a result, the percentage of tax filers contributing to a RPP has changed little among women while falling among men during the 1986-2001 period.

Most of these qualitative patterns hold when we consider the percentage of tax filers who participate in a (contributory or non-contributory) RPP. For instance, using this more comprehensive measure of employees' RPP coverage and restricting our attention to the 1991-2001 period, we still find that pension coverage fell among men aged 25 to 64 and rose among women aged 45 to 54.[34]

Some differences are worth noting, however. The two measures of pension coverage yield different conclusions regarding the evolution of pension coverage of women aged 55 to 64 and of individuals aged 17-24. Among these groups, the percentage of tax filers contributing to a RPP has fallen slightly between 1991 and 2001 while the percentage of tax filers participating in a RPP has been either stagnant or slightly increasing.

Taken together, the results confirm the findings of Morissette and Drolet (2001), i.e., indicate that since the mid-1980s, RPP coverage has fallen substantially for men aged 25 and over, has dropped slightly for women aged 25 to 34 and has risen for women aged 45 to 54.[35]

IX. Conclusion

Recent media reports in the United States and in Canada have raised the possibility that new forms of outsourcing may be driving jobs offshore and contribute to the elimination of well-paid jobs in the Canadian labour market. Our examination of consistent hourly wage data from the Labour Force Survey has shown little evidence to support the notion that well-paid jobs have been disappearing between 1997 and 2004 in Canada. Likewise, we have found little evidence

32. This second measure is calculated using the fraction of tax filers who have a positive pension adjustment. The pension adjustment is the sum of credits for the year, if any, from deferred profit sharing plans or benefit provisions of registered pension plans sponsored by the taxfiler's employer. Membership in deferred profit sharing plans is a very small proportion of membership in RPPs: in 1993, the former represented only 7% of the latter (Frenken, 1995). As a result, changes in the percentage of taxfilers with positive pension adjustment should reflect mainly changes in the percentage of taxfilers who are members of RPPs.

33. The sample used for Tables 13 and 14 consists of tax filers aged 17 to 64 who had annual earnings (wages and salaries plus net income from self-employment) of at least $1,000 in 1994 constant dollars.

34. Interestingly, the percentage of women aged 45 to 54 contributing to a RPP was, in 2001, very similar to its value in 1991.

35. Morissette and Drolet (2001) find an increase in RPP coverage among women aged 35 to 54 but do not distinguish those aged 35 to 44 from those aged 45 to 54.

that the proportion of jobs paying less than $10.00 per hour has risen during this period. Low-paid jobs have increased their relative importance only in low-skilled services. Furthermore, median wages have shown little growth between 1997 and 2003. This is somewhat surprising in light of the fact that real GDP per capita grew about 3% per year, on average, during the 1997-2003 period.[36]

While we refrain from making definitive statements about the evolution of wage levels over the 1981-2004 period, the data shown also provide little support for the view that the relative importance of well-paid jobs, however defined, has been trending downwards over the last two decades. Neither do we find support for the notion that the relative importance of jobs paying $10.00 per hour has been trending upwards during this period.[37]

In contrast, the data clearly indicate that the wage gap between newly hired employees and other employees has been widening over the last two decades, *even within age groups*. The widening appears to have occurred in the first half of the 1980s as well as between the early 1990s and the late 1990s. While the reasons underlying this pattern are currently unknown, one explanation is that, since the 1980s, Canadian employers may have responded to technological changes and/or more intense competition within industries and from abroad by cutting wages for newly hired workers while maintaining wages of workers with greater seniority. They might have done so in order to maintain morale and productivity among their core workers.

Whatever factors are at work here, the drop in the relative wages of newly hired employees shown in this paper is important for at least three reasons. First, it may help explain the substantial decline in quit rates observed in Canada between the late 1980s and the late 1990s.[38] Second, it may have increased the earnings losses experienced by Canadian displaced workers between the 1980s and the 1990s. Third, unless it is offset by a steepening of the wage-seniority profile, it may signal changes in firms' wage offers which may induce a reduction in the relative importance of well-paid jobs in the years to come, with obvious implications for Canadians' living standards.

Although the relative importance of well-paid jobs does not seem to have changed much over the last two decades, other changes have affected job quality. First, the relative importance of temporary jobs has increased substantially among newly hired employees. Second, substantial changes in non-wage benefits have been observed. Compared to the early 1980s, fewer male employees are now covered by a registered pension plan. Whether or not this decline in male RPP coverage has been offset by an increase in coverage by group registered retirement savings plans (group RRSPs) is currently unknown and remains an issue that cannot be addressed because of a lack of suitable data. However, even if increases in group RRSP coverage have fully offset the decline in RPP coverage observed among men, one consequence is that the investment risk associated with employer-sponsored pension plans has been shifted, in many cases, onto

36. See: Cansim, Tables 397-0017 and 051-0001.

37. One limitation of the study is that we cannot assess with current data whether unpaid workhours rose over the last two decades. Had they increased, trends in the relative importance of low-paid jobs and well-paid jobs might have been less favourable than those presented in this study.

38. Morissette (2004) finds that while permanent layoff rates did not change much between the late 1980s and the late 1990s, permanent quit rates fell substantially for men and women of all ages.

male workers, rather than being borne by their employer. This is so since group RRSPs, contrary to most RPPs, do not guarantee workers a defined benefit at the time of their retirement.[39] Whatever the preferences of male employees are regarding the type of employer-sponsored pension plan they are offered, this change should be kept in mind in subsequent attempts to assess the evolution of the relative importance of well-paid jobs and low-paid jobs in Canada.

39. On January 1, 2000, 85% of RPP members belonged to defined-benefit RPPs. See: Pension Plans in Canada, January 1, 2000, Catalogue No. 74-401-XIB, Table 11, p. 36.

Table 1: Median hourly wages (2001 dollars), 1981-2004

I. Employees aged 17-64	Men and women		Men		Women	
Year	N=	Median wages	N=	Median wages	N=	Median wages
1981	34,392	15.16	19,881	17.29	14,511	12.85
1984	32,952	15.61	17,713	18.24	15,239	12.92
1986	36,237	14.90	19,840	17.85	16,397	12.77
1987	42,944	15.14	23,284	17.85	19,660	12.85
1988	35,796	15.44	19,426	17.98	16,370	13.25
1989	35,763	15.33	19,105	17.75	16,658	13.08
1990	35,300	15.25	18,770	17.77	16,530	13.10
1997	46,891	15.26	24,108	17.17	22,783	13.52
1998	47,592	15.39	24,499	17.15	23,093	13.55
1999	47,952	15.27	24,604	17.22	23,348	13.55
2000	48,318	15.38	24,887	17.43	23,431	13.67
2001	50,263	15.38	25,488	17.43	24,775	13.91
2002	51,045	15.52	25,764	17.39	25,281	13.69
2003	51,827	15.23	25,980	17.13	25,847	13.90
2004	51,162	15.33	25,448	16.92	25,714	13.93
1981 vs 2004	-	1.1%		-2.2%	-	8.5%
1997 vs 2004	-	0.4%	-	-1.5%	-	3.0%

II. Employees aged 25-64	Men and women		Men		Women	
Year	N=	Median wages	N=	Median wages	N=	Median wages
1981	26,437	16.60	15,649	18.95	10,788	13.83
1984	25,597	17.06	14,065	20.05	11,532	14.13
1986	29,269	16.77	16,358	19.38	12,911	14.10
1987	34,811	17.04	19,135	19.64	15,676	14.28
1988	29,019	17.16	15,878	19.74	13,141	14.22
1989	29,300	16.79	15,752	19.51	13,548	14.18
1990	29,215	16.71	15,526	19.23	13,689	14.07
1997	39,705	16.71	20,430	18.83	19,275	14.87
1998	40,247	16.77	20,687	18.84	19,560	14.94
1999	40,519	16.85	20,761	18.96	19,758	14.79
2000	40,616	17.10	20,920	19.20	19,696	14.93
2001	41,950	17.00	21,279	19.23	20,671	15.00
2002	42,808	17.06	21,516	19.03	21,292	15.04
2003	43,297	17.08	21,656	18.94	21,641	15.18
2004	42,754	16.92	21,216	18.58	21,538	15.31
1981 vs 2004	-	1.9%		-2.0%	-	10.7%
1997 vs 2004	-	1.2%	-	-1.4%	-	2.9%

Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Table 2: Percentage distribution of hourly wages (2001 dollars), 1981-2004

Hourly wages	Less than $8.00	$8.00 - $9.99	$10.00- $14.99	$15.00 - $19.99	$20.00 - $24.99	$25.00 - $29.99	$30.00 - $34.99	$35.00 or more
I. Employees aged 17-64								
1981	12.1	10.3	26.7	22.9	13.6	7.5	3.2	3.8
1984	12.0	11.0	24.2	21.8	15.9	8.1	3.9	3.2
1986	15.0	8.7	26.9	19.4	14.5	8.3	3.3	4.0
1987	14.0	10.4	25.0	21.1	14.6	7.9	3.3	3.7
1988	12.2	9.5	25.3	21.8	14.9	8.1	3.8	4.4
1989	13.7	9.4	25.4	21.8	14.0	7.9	3.7	4.1
1990	13.2	10.6	25.5	21.1	14.4	7.7	3.8	3.9
1997	12.4	11.2	24.3	21.7	15.1	7.5	4.2	3.7
1998	12.0	11.5	24.1	22.1	14.4	7.9	4.2	3.9
1999	12.7	10.0	25.7	20.3	14.7	8.6	4.0	4.1
2000	11.7	10.5	25.4	21.6	14.4	8.6	3.8	4.0
2001	10.6	9.6	26.1	21.4	14.1	9.0	4.5	4.7
2002	12.3	11.5	24.3	20.7	13.3	8.3	4.6	4.9
2003	11.9	11.9	24.5	21.3	12.9	8.6	4.5	4.5
2004	12.6	11.0	25.2	19.7	13.4	8.6	4.6	5.0
Change:								
1986-2004	-2.4	2.3	-1.7	0.3	-1.2	0.3	1.3	1.0
1981-2004	0.5	0.7	-1.6	-3.1	-0.2	1.1	1.4	1.2
1997-98 vs 2003-04	0.0	0.1	0.6	-1.3	-1.6	0.9	0.4	0.9
(Standard errors)	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.2*
II. Employees aged 25-64								
1981	8.8	8.4	24.8	24.7	15.6	9.1	3.9	4.6
1984	6.9	8.0	23.4	24.0	18.9	10.0	4.9	4.0
1986	9.0	6.9	26.0	21.8	17.3	10.1	4.0	4.8
1987	8.4	8.2	24.2	23.8	17.3	9.6	4.1	4.5
1988	7.5	7.2	23.8	24.1	17.4	9.8	4.7	5.5
1989	8.2	7.3	24.9	24.1	16.4	9.6	4.6	5.0
1990	8.4	8.3	24.8	23.4	16.6	9.2	4.5	4.7
1997	7.0	8.7	24.3	24.3	17.5	8.9	5.0	4.4
1998	6.6	9.2	23.9	24.7	16.7	9.3	5.0	4.6
1999	7.0	8.0	25.3	22.6	17.1	10.2	4.8	4.8
2000	6.4	8.3	25.0	24.1	16.8	10.2	4.5	4.8
2001	5.7	7.3	25.2	23.7	16.4	10.7	5.4	5.6
2002	6.8	9.4	24.1	23.1	15.5	9.8	5.5	5.8
2003	6.5	9.4	24.4	23.9	15.1	10.1	5.4	5.3
2004	6.9	8.8	25.1	22.2	15.6	10.2	5.5	5.9
Change:								
1986-2004	-2.2	1.9	-1.0	0.4	-1.7	0.1	1.5	1.1
1981-2004	-2.0	0.4	0.2	-2.6	0.0	1.0	1.6	1.3
1997-98 vs 2003-04	-0.1	0.1	0.6	-1.5	-1.8	1.0	0.5	1.1
(Standard errors)	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.2*

Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Table 3: Indexed median hourly wages by industry, 1997-2004 (1997:100)

	1997	1998	1999	2000	2001	2002	2003	2004
I. Employees aged 17 to 64								
Primary industries & construction	100.0	99.1	102.9	103.7	104.0	106.0	103.8	102.0
Manufacturing	100.0	99.1	99.8	101.1	100.4	99.6	99.7	98.7
High-skilled services	100.0	100.1	100.9	103.8	104.8	102.5	101.0	102.9
Low-skilled services	100.0	101.1	98.2	101.2	100.3	101.9	99.9	98.1
Wholesale trade and other services	100.0	98.6	100.6	101.6	105.6	103.3	104.6	103.7
Public services	100.0	97.8	99.9	97.8	97.7	101.0	98.2	99.7
II. Employees aged 25 to 64								
Primary industries & construction	100.0	97.4	100.8	100.1	100.6	100.5	97.8	96.4
Manufacturing	100.0	99.6	99.6	101.1	99.2	99.3	99.4	97.0
High-skilled services	100.0	102.1	103.8	104.9	106.4	104.1	103.8	104.3
Low-skilled services	100.0	100.6	97.4	100.5	101.7	101.0	101.2	100.5
Wholesale trade and other services	100.0	96.5	98.0	101.8	104.4	105.0	105.4	104.3
Public services	100.0	98.2	98.4	96.9	97.8	100.7	98.0	98.6

Source: Labour Force Survey.

Table 4: Percentage distribution of hourly wages in manufacturing and highly skilled services

Hourly wages	Employees aged 17-64					Employees aged 25-64				
	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+
I. Manufacturing										
1997	16.1	25.9	24.6	19.4	13.9	12.7	24.5	26.2	21.1	15.6
1998	17.4	24.5	23.8	18.3	16.0	14.0	23.1	25.1	20.0	17.9
1999	16.3	27.2	22.5	18.1	16.0	13.4	25.1	23.5	19.9	18.1
2000	14.3	27.3	24.2	18.2	15.9	11.5	25.0	25.3	20.1	18.1
2001	12.6	28.8	24.2	16.0	18.6	10.4	26.2	25.3	17.2	20.8
2002	16.6	26.9	23.8	15.6	17.1	13.6	25.2	25.1	17.0	19.1
2003	14.9	28.7	24.5	14.8	17.1	12.0	27.6	25.5	16.1	18.9
2004	15.9	29.0	21.7	15.2	18.2	12.7	27.9	22.7	16.5	20.3
1997-98 vs 2003-04	-1.4	3.7	-1.1	-3.9	2.7	-1.1	3.9	-1.5	-4.3	2.8
	0.6	*0.7*	*0.6*	*0.6*	*0.6*	*0.6*	*0.7*	*0.7*	*0.6*	*0.6*
II. Highly skilled services										
1997	17.3	27.4	24.0	15.2	16.2	12.8	26.0	25.8	16.9	18.6
1998	17.1	26.3	24.6	15.0	17.0	12.5	25.0	26.4	16.8	19.4
1999	15.2	27.6	23.1	15.3	18.8	10.7	26.1	24.9	16.9	21.4
2000	15.1	26.6	24.4	15.0	18.9	10.8	24.8	25.9	16.9	21.6
2001	12.8	28.3	23.0	15.6	20.2	9.0	26.2	24.5	17.4	22.9
2002	16.8	26.6	23.1	13.6	19.9	12.0	25.3	24.8	15.3	22.7
2003	17.0	26.1	24.2	13.7	19.0	12.3	24.6	26.1	15.3	21.7
2004	16.6	27.0	22.1	15.0	19.3	11.8	25.7	24.0	16.8	21.8
1997-98 vs 2003-04	-0.4	-0.3	-1.1	-0.7	2.5	-0.6	-0.3	-1.1	-0.8	2.8
	0.5	*0.6*	*0.6*	*0.5*	*0.6*	*0.5*	*0.6*	*0.6*	*0.6*	*0.6*

Note: Standard errors are in italics.
Source: Labour Force Survey.

Table 5: Percentage distribution of hourly wages in low-skilled services, wholesale trade and other services

Hourly wages	Employees aged 17-64					Employees aged 25-64				
	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+
I. Low-skilled services										
1997	58.1	23.2	10.5	5.2	3.1	42.5	29.9	15.0	7.9	4.8
1998	55.8	23.7	11.9	5.2	3.4	40.4	29.4	17.3	7.8	5.1
1999	57.6	24.4	9.5	4.8	3.7	41.5	31.2	14.2	7.4	5.7
2000	57.2	24.0	10.5	5.1	3.2	41.0	30.9	15.4	7.8	5.0
2001	54.0	25.5	10.8	5.0	4.8	37.9	31.8	15.2	7.6	7.6
2002	58.9	24.0	9.6	4.1	3.4	43.6	31.2	13.8	6.3	5.3
2003	60.1	22.1	10.1	4.1	3.6	44.6	28.8	14.5	6.4	5.7
2004	59.9	22.6	9.6	4.1	3.8	43.9	29.4	14.4	6.4	5.9
1997-98 vs 2003-04	3.1	-1.1	-1.4	-1.1	0.5	2.8	-0.6	-1.7	-1.4	0.9
	0.7	*0.6*	*0.4*	*0.3*	*0.3*	*0.9*	*0.8*	*0.6*	*0.5*	*0.4*
II. Wholesale trade and other services										
1997	26.1	25.9	21.2	12.9	13.9	18.2	26.1	24.1	15.0	16.5
1998	25.6	27.2	21.1	13.2	12.9	18.2	27.2	23.8	15.5	15.4
1999	24.0	28.2	21.2	12.5	14.1	16.9	28.0	23.6	14.7	16.9
2000	23.6	27.7	21.6	12.1	15.0	16.5	27.1	24.4	14.1	17.8
2001	19.7	26.5	23.4	13.7	16.8	13.0	25.6	25.7	15.8	20.0
2002	23.7	25.7	20.8	13.7	16.2	16.8	24.4	23.5	16.1	19.2
2003	24.4	24.5	21.8	11.9	17.5	16.7	23.9	24.6	13.9	20.8
2004	24.9	24.6	19.6	12.9	18.0	17.0	24.0	22.4	15.2	21.5
1997-98 vs 2003-04	-1.2	-2.0	-0.5	-0.6	4.3	-1.4	-2.7	-0.4	-0.7	5.2
	0.8	*0.7*	*0.8*	*0.6*	*0.7*	*0.7*	*0.8*	*0.8*	*0.7*	*0.8*

Note: Standard errors are in italics.
Source: Labour Force Survey.

Table 6: Percentage distribution of hourly wages in primary industries, construction and public services

Hourly wages	Employees aged 17-64					Employees aged 25-64				
	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+	< $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00+
I. Primary industries and construction										
1997	15.2	22.5	23.0	20.1	19.2	9.3	20.4	24.5	23.3	22.6
1998	16.4	21.9	22.0	18.1	21.6	11.2	19.7	23.3	20.4	25.4
1999	15.1	24.4	18.8	19.1	22.8	10.3	20.7	19.9	22.2	26.9
2000	12.9	23.8	22.0	19.8	21.6	8.5	20.7	23.4	22.4	25.1
2001	11.4	24.4	21.4	18.8	24.1	7.6	20.3	22.5	21.4	28.2
2002	14.3	22.3	21.5	17.2	24.8	9.9	19.3	22.4	19.4	29.1
2003	15.0	22.4	22.7	17.7	22.2	10.1	19.8	24.3	19.7	26.0
2004	13.6	25.2	21.3	17.0	23.1	9.0	21.5	22.8	19.2	27.5
1997-98 vs 2003-04	-1.5	1.6	-0.5	-1.8	2.2	-0.7	0.6	-0.4	-2.4	2.8
	0.7	*0.8*	*0.8*	*0.7*	*0.8*	*0.6*	*0.8*	*0.9*	*0.8*	*0.9*
II. Public services										
1997	9.2	21.1	26.2	19.0	24.7	6.6	20.0	26.8	20.1	26.4
1998	9.2	21.4	27.1	17.7	24.7	6.2	20.5	27.9	18.8	26.6
1999	8.8	22.9	24.5	18.9	24.9	6.2	21.7	25.0	20.1	26.9
2000	9.4	23.5	25.9	17.5	23.7	6.8	22.3	26.6	18.6	25.6
2001	8.7	22.7	25.6	17.4	25.6	6.3	21.2	26.3	18.5	27.7
2002	9.9	20.6	25.0	17.5	26.9	7.4	19.6	25.7	18.5	28.8
2003	9.8	22.5	24.7	16.9	26.1	7.3	21.3	25.4	17.9	28.1
2004	9.3	23.0	23.8	16.9	26.9	7.1	21.8	24.2	17.9	28.9
1997-98 vs 2003-04	0.4	1.6	-2.3	-1.5	1.9	0.8	1.3	-2.6	-1.5	2.0
	0.3	*0.5*	*0.5*	*0.5*	*0.5*	*0.3*	*0.5*	*0.6*	*0.5*	*0.6*

Note: Standard errors are in italics.
Source: Labour Force Survey.

Table 7: Median hourly wages of employees aged 25 to 64, by seniority - various data sources (1981:100)

Men				
Data sources	**Special surveys***		**Survey of Consumer Finances**	
Seniority	**16-24 months**	**25 months or more**	**16-24 months**	**25 months or more**
Year				
1981	100.0	100.0	100.0	100.0
1986	96.9	106.4	90.0	99.2
1987	97.7	106.6	89.8	100.2
1988	103.4	108.8	96.4	100.6
1989	98.0	107.9	95.6	98.8
1990	104.5	106.0	94.6	100.6
1997	88.2	105.3	86.0	96.5
1998	90.9	105.7	-	-
1999	91.6	105.1	-	-
2000	94.8	106.4	-	-
2001	97.0	104.8	-	-
2002	94.0	104.1	-	-
2003	93.1	103.7	-	-
2004	88.5	104.3	-	-
Minimum sample size	1,002	10,436	667	8,361
Change: 1981-1997	**-11.8**	**5.3**	**-14.0**	**-3.5**

Women				
Data sources	**Special surveys***		**Survey of Consumer Finances**	
Seniority	**16-24 months**	**25 months or more**	**16-24 months**	**25 months or more**
Year				
1981	100.0	100.0	100.0	100.0
1986	98.4	102.9	93.6	103.2
1987	100.1	104.0	98.7	105.4
1988	101.0	104.2	95.5	100.8
1989	103.1	103.9	104.1	103.7
1990	104.6	103.3	100.5	107.2
1997	96.8	111.0	103.0	109.2
1998	100.1	111.0	-	-
1999	98.4	109.9	-	-
2000	101.8	111.4	-	-
2001	102.0	111.8	-	-
2002	101.3	112.6	-	-
2003	98.5	111.7	-	-
2004	100.2	114.1	-	-
Minimum sample size	934	7,106	757	6,317
Change: 1981-1997	**-3.2**	**11.0**	**3.0**	**9.2**

Note: *: Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.
Source: The Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004 and the Survey of Consumer Finances, 1981-1997.

Table 8: Descriptive statistics for newly hired employees and other employees, 1981-1998

	Men aged 25 to 64				Women aged 25 to 64			
	New employees*		Other employees		New employees*		Other employees	
	1981	1998	1981	1998	1981	1998	1981	1998
Age								
25-34	53.1	48.7	33.7	26.3	47.9	46.0	35.5	26.2
35-44	23.0	28.8	28.0	36.0	28.0	32.5	28.7	35.8
45-54	15.4	16.5	22.0	26.9	16.6	17.7	22.0	28.6
55-64	8.5	6.1	16.4	10.9	7.5	3.8	13.8	9.4
University degree								
Yes	16.3	22.4	15.5	20.8	13.4	21.8	11.8	20.0
No	83.7	77.6	84.5	79.2	86.6	78.2	88.2	80.0
Unionized								
Yes	38.3	18.1	48.0	41.8	26.9	16.2	37.6	40.0
No	61.7	81.9	52.0	58.2	73.1	83.8	62.4	60.0
Full-time worker								
Yes	95.9	91.8	98.1	97.1	70.5	70.1	81.5	81.4
No	4.1	8.2	1.9	2.9	29.5	29.9	18.5	18.6
Industry								
Agriculture & Fishing	2.1	2.5	0.7	1.0	1.7	1.7	1.0	0.7
Forestry and Mining	6.9	3.7	4.0	2.9	0.8	0.7	0.7	0.5
Construction	15.8	11.3	5.2	5.1	1.7	1.2	1.2	1.0
Manufacturing	21.7	20.5	29.7	28.8	13.7	12.4	15.7	11.4
Distributive services	15.0	18.1	20.2	18.9	7.7	8.7	9.1	8.8
Business services	8.1	12.6	7.1	8.6	11.8	16.5	13.3	14.5
Consumer services	15.5	20.0	10.7	13.8	25.9	31.2	21.2	19.7
Public services	14.9	11.5	22.5	21.1	36.6	27.6	37.9	43.5
Occupation								
Professional/managers	8.4	13.2	14.2	17.8	4.5	14.2	9.2	17.9
Natural/Social science	13.5	14.2	13.8	16.0	23.4	19.4	22.1	26.4
Clerical	3.9	5.5	8.4	6.4	30.8	24.4	36.3	27.9
Sales	8.4	8.5	8.5	6.4	8.8	10.2	8.5	6.5
Services	9.9	10.0	8.9	9.1	17.5	17.7	11.8	11.1
Primary/Processing	26.4	24.3	25.6	25.0	10.5	8.3	8.6	6.7
Construction	15.6	10.2	7.6	6.7	0.2	0.2	0.2	0.1
Other	14.0	14.1	13.1	12.6	4.3	5.7	3.4	3.5
Average seniority (months)	11.9	10.2	146.7	150.0	11.6	10.5	107.1	131.3
Median ln wages	2.84	2.71	2.96	3.01	2.51	2.42	2.67	2.78
Sample size	4,132	5,629	11,517	15,058	3,682	5,453	7,106	14,107

Note: *: 1-24 months of seniority.
Source: Survey of Work History of 1981; Labour Force Survey of 1998.

Table 9: Relative wage growth of newly hired employees, 1981-1998 - Results of median regressions

	Employees aged 25 to 64		Employees aged 25 to 44		Employees aged 45 to 64	
ln_81-98	Men	Women	Men	Women	Men	Women
1. No controls	-0.187***	-0.196***	-0.129***	-0.144***	-0.147***	-0.272***
Pseudo R-squared	0.0265	0.0384	0.0300	0.0419	0.0314	0.0379
2. Controls for age & education	-0.181***	-0.161***	-0.169***	-0.121***	-0.109***	-0.219***
Pseudo R-squared	0.0712	0.1073	0.0716	0.1093	0.0809	0.1104
3. Other controls*	-0.150***	-0.089***	-0.127***	-0.067***	-0.131***	-0.133***
Pseudo R-squared	0.1436	0.2436	0.1420	0.2458	0.1591	0.2433
4. Full set of controls**	-0.147***	-0.099***	-0.121***	-0.0761***	-0.132***	-0.138***
Pseudo R-squared	0.1562	0.2613	0.1552	0.2623	0.1696	0.2641
Sample size	36,336	30,348	23,597	20,303	12,739	10,045

Note: * Controls for union status, part-time status, industry and occupation (See text for details).
** Controls for age, education, union status, part-time status, industry and occupation (See text for details).
***: statistically significant at the 1% level.

Source: Survey of Work History of 1981 and Labour Force Survey of 1998.

Table 10: Median log hourly wages (2001 dollars) of men, by cohort, 1981-2004

	1981	1988	1989	1997	1999	2004
I. Men:						
Cohort aged:						
25-34 in 1981	2.91	3.03	3.02	3.06	3.05	3.02
25-34 in 1988	-	2.88	2.89	2.97	3.00	3.00
25-34 in 1989	-	-	2.85	2.96	2.98	2.98
25-34 in 1997	-	-	-	2.79	2.86	2.92
25-34 in 1999	-	-	-	-	2.77	2.92
25-34 in 2004	-	-	-	-	-	2.80
II. Men with no university degree						
Cohort aged:						
25-34 in 1981	2.88	2.98	2.98	2.97	3.00	2.93
25-34 in 1988	-	2.84	2.85	2.92	2.94	2.92
25-34 in 1989	-	-	2.83	2.91	2.91	2.92
25-34 in 1997	-	-	-	2.74	2.79	2.87
25-34 in 1999	-	-	-	-	2.72	2.83
25-34 in 2004	-	-	-	-	-	2.73
III. Men with a university degree						
Cohort aged:						
25-34 in 1981	3.08	3.27	3.24	3.35	3.35	3.43
25-34 in 1988	-	3.05	3.03	3.26	3.30	3.37
25-34 in 1989	-	-	3.00	3.22	3.30	3.35
25-34 in 1997	-	-	-	2.97	3.10	3.20
25-34 in 1999	-	-	-	-	3.03	3.20
25-34 in 2004	-	-	-	-	-	3.02

Source: Survey of Work History of 1981;
Labour Market Activity Survey of 1988-1989;
Labour Force Survey of 1997, 1999 and 2004.

Table 11: Median log hourly wages (2001 dollars) of women, by cohort, 1981-2004

	1981	1988	1989	1997	1999	2004
I. Women:						
Cohort aged:						
25-34 in 1981	2.65	2.69	2.67	2.75	2.76	2.76
25-34 in 1988	-	2.64	2.66	2.74	2.73	2.75
25-34 in 1989	-	-	2.65	2.74	2.72	2.75
25-34 in 1997	-	-	-	2.63	2.69	2.75
25-34 in 1999	-	-	-	-	2.63	2.76
25-34 in 2004	-	-	-	-	-	2.69
II. Women with no university degree						
Cohort aged:						
25-34 in 1981	2.61	2.62	2.61	2.67	2.69	2.66
25-34 in 1988	-	2.61	2.60	2.65	2.65	2.67
25-34 in 1989	-	-	2.59	2.64	2.64	2.66
25-34 in 1997	-	-	-	2.55	2.58	2.63
25-34 in 1999	-	-	-	-	2.54	2.63
25-34 in 2004	-	-	-	-	-	2.57
III. Women with a university degree						
Cohort aged:						
25-34 in 1981	2.98	3.15	3.10	3.17	3.17	3.22
25-34 in 1988	-	2.95	2.97	3.12	3.13	3.15
25-34 in 1989	-	-	2.93	3.11	3.13	3.15
25-34 in 1997	-	-	-	2.91	3.01	3.09
25-34 in 1999	-	-	-	-	2.95	3.07
25-34 in 2004	-	-	-	-	-	2.93

Source: Survey of Work History of 1981;
Labour Market Activity Survey of 1988-1989;
Labour Force Survey of 1997, 1999 and 2004.

Table 12: Percentage of employees* in temporary jobs, by selected characteristics, 1989-2004

Year	1989	1994	1998	2004
I. All industries except public administration				
Men and women	5	7	8	9
New employees**	11	16	21	21
Other employees	3	5	3	5
II. All industries				
Men and women	5	7	9	9
New employees**	12	16	22	22
Other employees	3	5	4	5
Full-time jobs	4	6	7	8
New employees**	9	14	19	19
Other employees	2	4	3	4
Non-unionized jobs	5	7	9	9
New employees**	10	15	20	20
Other employees	2	5	3	4
Unionized jobs	5	7	8	9
New employees**	19	26	31	28
Other employees	3	5	4	6
Men and women aged 25-34	6	9	10	11
New employees**	10	16	19	19
Other employees	2	7	4	5
Men and women aged 35-64	5	6	8	9
New employees**	13	17	24	23
Other employees	3	5	3	5
Men	4	7	8	8
New employees**	12	19	21	20
Other employees	2	5	3	4
Women	6	7	10	10
New employees**	11	14	23	23
Other employees	4	5	4	6
Non-university graduates	5	7	8	9
New employees**	11	17	22	21
Other employees	3	5	3	5
University graduates	7	9	9	10
New employees**	15	16	22	24
Other employees	3	7	4	5

Note: *: unless otherwise stated, the numbers refer to men and women aged 25 to 64 who are not full-time students.
**: employees with 2 years of seniority or less.
Source: General Social Surveys of 1989 and 1994; Labour Force Surveys of 1998 and 2004.

Table 13: Percentage of tax filers contributing to a RPP, 1986-2001

Age group	17-24	25-34	35-44	45-54	55-64	17-64	25-64
Women							
1986	8.1	27.5	32.4	31.2	30.1	25.5	30.0
1987	8.7	27.3	32.9	31.5	29.5	25.8	30.1
1988	9.2	27.6	34.2	33.3	29.8	26.8	31.0
1989	9.0	27.2	34.4	34.2	29.7	27.1	31.2
1990	9.2	27.6	34.9	35.3	30.3	27.9	31.8
1991	8.9	27.6	35.2	36.3	30.4	28.4	32.2
1992	8.3	28.1	35.8	37.6	31.2	29.2	33.0
1993	7.3	28.0	35.7	38.5	31.6	29.4	33.3
1994	6.2	27.1	35.0	38.9	31.6	29.0	33.0
1995	5.5	26.3	34.4	39.3	31.9	28.7	32.8
1996	5.0	25.1	33.6	39.2	31.8	28.3	32.2
1997	5.3	24.0	32.2	38.6	31.1	27.5	31.3
1998	5.6	23.7	31.5	37.6	29.2	26.9	30.6
1999	6.1	23.5	30.7	36.5	28.1	26.4	30.0
2000	6.5	24.0	30.6	36.6	29.5	26.7	30.3
2001	6.9	24.3	30.5	36.5	28.7	26.8	30.3
Men							
1986	8.1	26.1	37.4	38.1	34.3	28.5	33.0
1987	8.6	25.6	36.7	37.4	33.1	28.1	32.3
1988	9.2	25.5	36.4	37.6	32.2	28.2	32.1
1989	8.8	24.7	35.5	37.3	31.2	27.7	31.4
1990	8.7	24.5	35.1	37.4	31.0	27.8	31.3
1991	7.9	24.0	34.5	37.5	30.6	27.6	31.0
1992	7.1	23.8	33.9	37.5	30.2	27.5	30.8
1993	6.3	23.2	33.3	37.8	30.1	27.3	30.7
1994	5.4	22.1	32.2	37.2	29.2	26.4	29.8
1995	5.0	21.3	31.3	36.8	28.7	25.9	29.2
1996	4.7	20.3	30.3	36.2	27.8	25.3	28.5
1997	4.8	19.7	29.4	35.5	26.9	24.7	27.8
1998	4.9	19.3	28.5	34.6	25.7	24.0	27.2
1999	5.2	18.5	26.9	32.9	24.3	23.0	25.9
2000	5.6	18.4	26.3	32.1	24.4	22.7	25.5
2001	6.0	18.5	25.7	31.5	24.0	22.5	25.2
Both sexes							
1986	8.1	26.7	35.2	35.2	32.8	27.2	31.7
1987	8.6	26.3	35.0	34.9	31.8	27.1	31.3
1988	9.2	26.5	35.4	35.7	31.3	27.6	31.6
1989	8.9	25.9	35.0	36.0	30.7	27.5	31.3
1990	8.9	25.9	35.0	36.5	30.8	27.8	31.5
1991	8.4	25.7	34.8	36.9	30.5	28.0	31.5
1992	7.7	25.8	34.8	37.6	30.6	28.3	31.8
1993	6.7	25.4	34.4	38.1	30.7	28.2	31.9
1994	5.8	24.4	33.5	38.0	30.1	27.6	31.3
1995	5.2	23.6	32.8	38.0	30.0	27.2	30.9
1996	4.8	22.6	31.8	37.6	29.4	26.6	30.2
1997	5.0	21.7	30.7	36.9	28.6	26.0	29.4
1998	5.3	21.4	29.9	36.0	27.1	25.4	28.8
1999	5.6	20.9	28.7	34.6	25.9	24.6	27.8
2000	6.0	21.1	28.3	34.2	26.5	24.6	27.8
2001	6.4	21.3	28.0	33.9	26.0	24.5	27.6

Source: Longitudinal Administrative Databank (1% file).

Table 14: Percentage of tax filers with a positive pension adjustment, 1991-2001

Age group	17-24	25-34	35-44	45-54	55-64	17-64	25-64
Women							
1991	11.9	34.2	41.5	41.7	34.1	33.9	38.2
1992	11.4	35.1	42.5	43.5	35.3	35.1	39.4
1993	10.5	35.0	42.7	44.6	35.9	35.4	39.9
1994	9.3	33.6	41.7	44.6	35.5	34.6	39.1
1995	8.9	33.2	41.7	45.5	36.3	34.9	39.4
1996	8.4	31.9	40.9	45.5	36.3	34.4	38.8
1997	9.0	31.7	40.6	45.6	36.2	34.4	38.8
1998	9.9	31.7	40.0	45.0	34.7	34.1	38.4
1999	10.3	31.4	39.4	44.4	34.1	33.8	38.0
2000	11.0	32.3	39.8	45.2	35.0	34.5	38.7
2001	11.4	32.9	40.0	45.5	35.5	35.0	39.1
Men							
1991	12.5	35.7	48.5	51.7	42.0	39.3	43.9
1992	11.6	35.3	48.1	52.0	41.6	39.3	43.9
1993	10.6	34.1	47.0	51.5	40.9	38.6	43.1
1994	9.5	32.2	45.2	50.4	39.4	37.1	41.6
1995	9.7	31.8	44.7	50.4	39.2	37.1	41.4
1996	9.3	30.8	43.6	49.6	38.4	36.4	40.6
1997	9.9	30.3	42.4	48.5	37.5	35.7	39.9
1998	10.5	30.3	41.8	47.8	36.6	35.4	39.5
1999	11.0	30.3	41.0	47.0	35.9	35.1	39.1
2000	11.7	30.8	41.0	46.8	36.1	35.3	39.3
2001	12.3	31.0	40.6	46.4	35.9	35.2	39.1
Both sexes							
1991	12.2	35.0	45.3	47.2	38.9	36.8	41.3
1992	11.5	35.2	45.5	48.2	39.2	37.4	41.8
1993	10.6	34.5	45.0	48.4	38.9	37.1	41.6
1994	9.4	32.8	43.6	47.8	37.8	36.0	40.5
1995	9.3	32.4	43.3	48.1	38.1	36.1	40.5
1996	8.9	31.3	42.4	47.7	37.6	35.5	39.8
1997	9.5	31.0	41.6	47.2	37.0	35.1	39.4
1998	10.2	31.0	41.0	46.5	35.8	34.8	39.0
1999	10.7	30.8	40.3	45.8	35.2	34.5	38.6
2000	11.3	31.5	40.4	46.0	35.7	34.9	39.0
2001	11.9	31.9	40.3	46.0	35.7	35.1	39.1

Source: Longitudinal Administrative Databank (1% file).

Appendix 1: Wage and hours concepts used in household surveys, 1981-2004

Survey	Wage concept	Hours concept
Survey of Work History of 1981	*usual* wage or salary before taxes and other deductions no reference is made to tips, commissions, bonuses and overtime	usual days per week + usual hours per day no reference is made to overtime
Survey of Union Membership of 1984	*usual* wage or salary before taxes and other deductions no reference is made to tips, commissions, bonuses and overtime	weeks worked in 1984 + usual hours per day no reference is made to overtime
Labour Market Activity Survey of 1986	*usual* wage or salary before taxes and other deductions no reference is made to tips, commissions, bonuses and overtime	*usual* paid days per week + *usual* paid hours per day no reference is made to overtime
Labour Market Activity Survey of 1987-90	*usual* wage or salary before taxes and other deductions includes tips, commissions, bonuses and paid overtime, all together	*usual* paid days per week + *usual* paid hours per day no reference is made to overtime
Labour Force Survey of 1997-2004	wage or salary before taxes and other deductions, including tips and commissions whether respondents include overtime pay is unclear	*usual* paid hours per week explicitly excludes overtime

Appendix 2 Table 1: Percentage distribution of hourly wages (2001 dollars), male workers, 1981-2004

Hourly wages	Less than $8.00	$8.00 - $9.99	$10.00- $14.99	$15.00 - $19.99	$20.00 - $24.99	$25.00 - $29.99	$30.00 - $34.99	$35.00 or more
I. Employees aged 17-64								
1981	8.3	7.6	23.1	24.7	17.1	10.1	4.2	5.0
1984	7.5	7.7	19.1	23.5	20.5	11.3	5.7	4.7
1986	10.1	6.7	22.7	20.3	18.1	12.0	4.5	5.7
1987	9.5	7.8	20.6	22.7	18.6	10.9	4.8	5.3
1988	8.0	6.9	20.1	23.7	18.7	11.2	5.3	6.1
1989	9.4	6.9	20.4	23.8	17.6	10.8	5.2	6.0
1990	9.0	7.5	21.3	22.8	18.5	10.3	5.2	5.5
1997	9.0	9.1	21.4	22.6	17.8	9.5	5.4	5.4
1998	8.6	9.1	21.2	22.8	17.3	9.9	5.7	5.5
1999	8.8	7.9	23.3	20.6	17.3	10.7	5.2	6.2
2000	8.2	8.2	22.6	22.2	17.3	10.8	4.8	5.9
2001	6.9	7.5	23.2	22.2	16.5	11.4	5.6	6.8
2002	8.6	9.1	22.9	21.3	15.5	10.1	5.6	7.1
2003	8.1	10.0	22.4	22.5	14.7	10.5	5.3	6.6
2004	9.0	9.4	23.4	20.1	15.5	10.4	5.2	7.0
Change:								
1986-2004	-1.1	2.8	0.8	-0.2	-2.6	-1.6	0.7	1.3
1981-2004	0.7	1.8	0.4	-4.5	-1.7	0.4	1.0	2.0
1997-2003	-0.8	0.9	1.0	-0.1	-3.0	1.0	-0.1	1.2
1997-2004	0.0	0.3	2.1	-2.5	-2.3	0.9	-0.2	1.6
II. Employees aged 25-64								
1981	5.3	5.6	20.6	26.1	19.2	12.1	5.1	6.0
1984	3.3	4.3	17.2	25.2	23.8	13.5	7.1	5.7
1986	5.0	4.5	20.2	22.2	21.2	14.5	5.5	6.9
1987	4.5	5.1	18.3	25.0	21.7	13.1	5.8	6.4
1988	3.7	4.2	17.3	25.8	21.6	13.5	6.5	7.5
1989	4.4	4.5	18.4	25.7	20.5	13.0	6.3	7.2
1990	4.5	4.6	19.4	25.0	21.5	12.2	6.2	6.6
1997	3.9	6.2	20.3	25.0	20.6	11.3	6.4	6.4
1998	3.7	6.2	20.0	25.2	20.1	11.7	6.7	6.5
1999	3.9	5.2	21.9	22.7	20.1	12.6	6.2	7.4
2000	3.6	5.4	21.0	24.3	20.1	12.8	5.7	7.0
2001	3.0	4.6	20.8	24.4	19.1	13.5	6.7	8.1
2002	3.9	6.2	21.6	23.5	17.9	11.9	6.6	8.5
2003	3.5	6.7	21.3	24.9	17.1	12.3	6.3	7.8
2004	3.7	6.7	22.4	22.5	17.9	12.3	6.2	8.3
Change:								
1986-2004	-1.3	2.2	2.2	0.3	-3.3	-2.2	0.7	1.4
1981-2004	-1.7	1.1	1.8	-3.7	-1.3	0.3	1.1	2.3
1997-2003	-0.4	0.5	1.0	-0.1	-3.5	1.1	-0.1	1.4
1997-2004	-0.2	0.5	2.1	-2.6	-2.7	1.1	-0.2	1.9

Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Appendix 2 Table 2: Percentage distribution of hourly wages (2001 dollars), female workers, 1981-2004

Hourly wages	Less than $8.00	$8.00 - $9.99	$10.00- $14.99	$15.00 - $19.99	$20.00 - $24.99	$25.00 - $29.99	$30.00 - $34.99	$35.00 or more
I. Employees aged 17-64								
1981	17.3	14.1	31.9	20.4	8.7	3.8	1.7	2.2
1984	17.4	15.0	30.5	19.7	10.3	4.2	1.6	1.3
1986	21.0	11.3	32.1	18.2	10.1	3.7	1.7	1.8
1987	19.5	13.5	30.4	19.3	9.9	4.2	1.5	1.7
1988	17.2	12.6	31.5	19.5	10.3	4.4	2.1	2.5
1989	18.6	12.2	31.1	19.6	9.8	4.5	2.1	2.1
1990	17.8	14.1	30.2	19.2	9.6	4.8	2.1	2.1
1997	16.2	13.6	27.5	20.7	12.1	5.3	2.9	1.8
1998	15.7	14.0	27.2	21.3	11.3	5.7	2.6	2.2
1999	16.9	12.3	28.2	19.9	11.9	6.5	2.8	1.7
2000	15.5	13.0	28.5	21.0	11.2	6.1	2.7	1.9
2001	14.5	11.9	29.2	20.6	11.6	6.5	3.3	2.5
2002	16.4	14.2	25.9	20.0	11.0	6.5	3.6	2.5
2003	15.7	13.9	26.7	20.1	11.1	6.5	3.7	2.2
2004	16.3	12.6	27.0	19.4	11.2	6.7	4.0	2.9
Change:								
1986-2004	-4.7	1.3	-5.1	1.1	1.1	3.0	2.3	1.1
1981-2004	-1.0	-1.5	-4.9	-1.0	2.6	2.9	2.3	0.7
1997-2003	-0.5	0.4	-0.8	-0.6	-1.1	1.3	0.8	0.5
1997-2004	0.1	-0.9	-0.5	-1.3	-0.9	1.5	1.1	1.1
II. Employees aged 25-64								
1981	14.0	12.5	31.0	22.7	10.4	4.8	2.2	2.6
1984	11.5	12.8	31.4	22.5	12.7	5.4	2.1	1.6
1986	14.2	10.0	33.4	21.3	12.3	4.5	2.2	2.1
1987	13.2	12.0	31.5	22.4	11.8	5.2	1.9	2.1
1988	12.0	10.8	31.7	22.1	12.4	5.5	2.6	3.0
1989	12.6	10.6	32.3	22.3	11.7	5.5	2.5	2.5
1990	12.9	12.5	31.1	21.6	11.2	5.7	2.6	2.5
1997	10.4	11.6	28.6	23.5	14.1	6.2	3.5	2.1
1998	9.7	12.4	28.2	24.1	13.1	6.8	3.1	2.6
1999	10.4	11.1	29.0	22.5	14.0	7.7	3.3	2.0
2000	9.3	11.5	29.3	23.9	13.1	7.3	3.3	2.3
2001	8.6	10.2	29.9	23.1	13.6	7.7	4.0	2.9
2002	10.0	12.8	26.8	22.7	12.9	7.6	4.3	3.0
2003	9.6	12.2	27.6	22.8	12.9	7.8	4.5	2.7
2004	10.2	10.9	27.8	21.9	13.2	8.0	4.7	3.5
Change:								
1986-2004	-4.0	0.9	-5.6	0.6	0.9	3.5	2.6	1.3
1981-2004	-3.8	-1.6	-3.2	-0.8	2.8	3.1	2.6	0.9
1997-2003	-0.8	0.6	-1.0	-0.7	-1.2	1.6	1.0	0.6
1997-2004	-0.3	-0.7	-0.8	-1.6	-1.0	1.7	1.3	1.3

Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Appendix 3: Incidence of low pay* and changes in the composition of the workforce, by age and sex, 1986-2004

	1986		2004	
	Incidence of low pay	Share in the workforce	Incidence of low pay	Share in the workforce
	%		%	
Men				
17-24	48.2	10.3	60.2	8.2
25-34	12.6	17.0	14.5	12.2
35-44	7.5	13.6	8.8	13.4
45-54	6.4	8.7	7.1	11.6
55-64	9.8	5.6	12.1	5.3
Women				
17-24	62.0	9.7	69.2	8.1
25-34	23.9	14.1	22.8	11.6
35-44	22.3	10.9	19.6	13.3
45-54	24.9	6.7	19.4	11.8
55-64	30.1	3.4	24.9	4.8
Incidence of low pay	23.7	100.0	23.6	100.0

Note: * Percentage of employees earning less than $10.00 per hour.

Source: Labour Market Activity Survey of 1986; Labour Force Survey of 2004.

Appendix 4: Percentage of employees* in temporary jobs, by selected characteristics, 1989-2004

Year	1989	1994	1998	2004
I. All industries except public administration				
Men and women	5	7	8	9
1 year of seniority or less	14	23	26	25
More than 1 year of seniority	3	5	5	6
II. All industries				
Men and women	5	7	9	9
1 year of seniority or less	15	23	27	26
More than 1 year of seniority	3	6	5	6
Full-time jobs	4	6	7	8
1 year of seniority or less	12	21	25	24
More than 1 year of seniority	2	5	4	5
Non-unionized jobs	5	7	9	9
1 year of seniority or less	13	21	25	24
More than 1 year of seniority	3	6	4	6
Unionized jobs	5	7	8	9
1 year of seniority or less	21	-	38	34
More than 1 year of seniority	4	6	5	7
Men and women aged 25-34	6	9	10	11
1 year of seniority or less	14	22	23	24
More than 1 year of seniority	3	7	5	7
Men and women aged 35-64	5	6	8	9
1 year of seniority or less	16	24	31	27
More than 1 year of seniority	3	5	4	6
Men	4	7	8	8
1 year of seniority or less	16	27	26	24
More than 1 year of seniority	2	6	4	5
Women	6	7	10	10
1 year of seniority or less	14	18	29	28
More than 1 year of seniority	4	6	5	7
Non-university graduates	5	7	8	9
1 year of seniority or less	13	24	27	25
More than 1 year of seniority	3	5	4	6
University graduates	7	9	9	10
1 year of seniority or less	20	22	28	29
More than 1 year of seniority	4	8	5	7

Note: *: unless otherwise stated, the numbers refer to men and women aged 25 to 64 who are not full-time students.
-: sample size too small to report numbers.
Source: General Social Surveys of 1989 and 1994
Labour Force Surveys of 1998 and 2004.

Figure 1: Density of log hourly wages of employees aged 17-64, 1981-2004

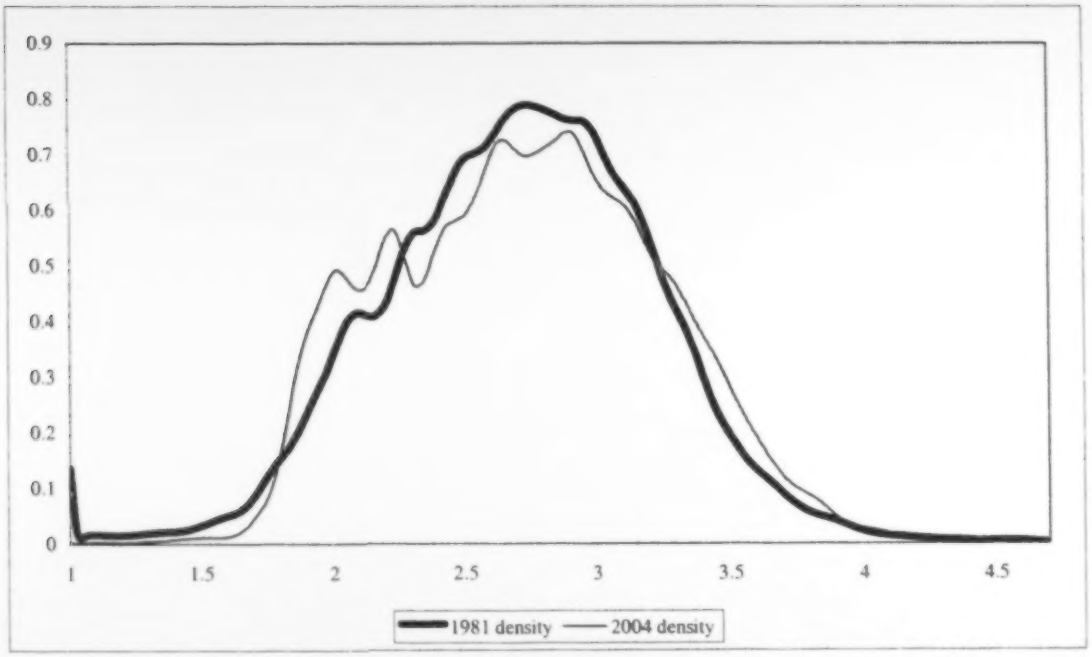
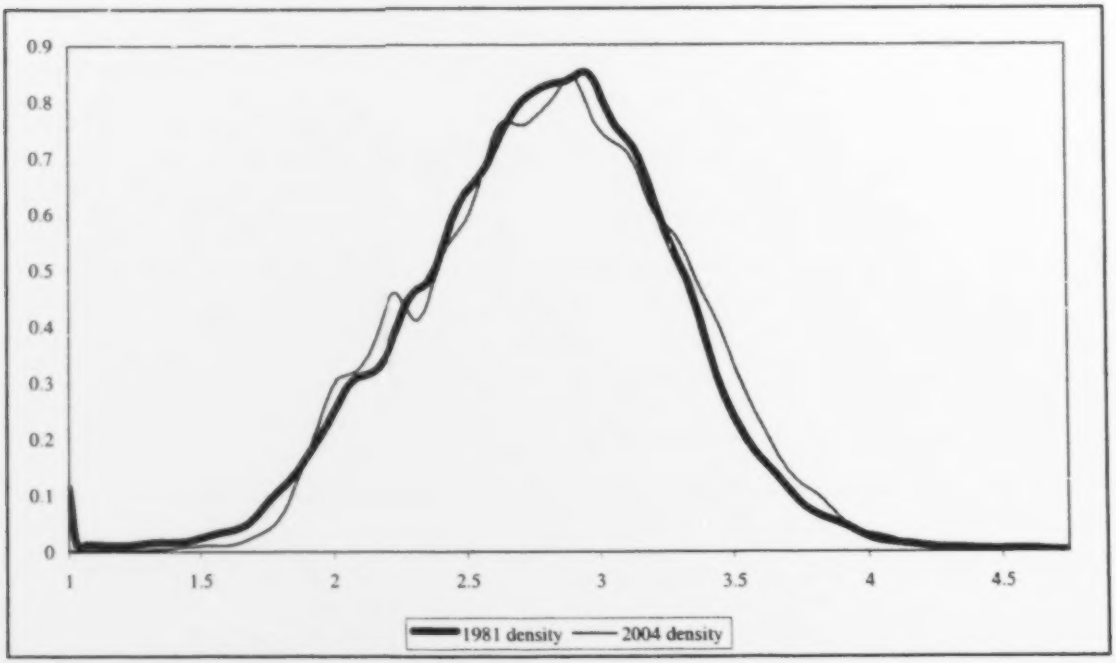
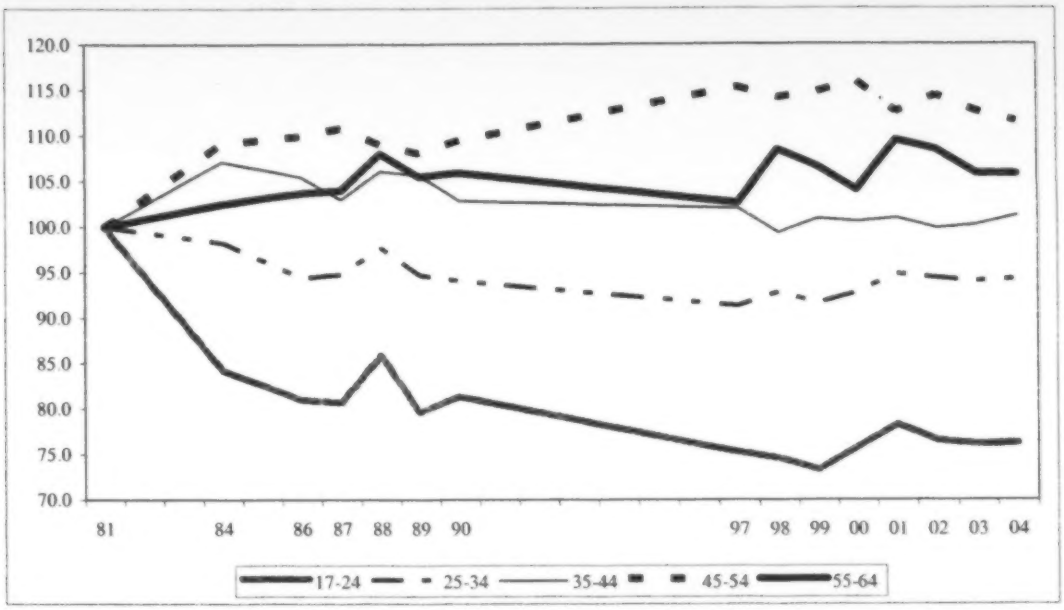


Figure 2: Density of log hourly wages of employees aged 25-64, 1981-2004



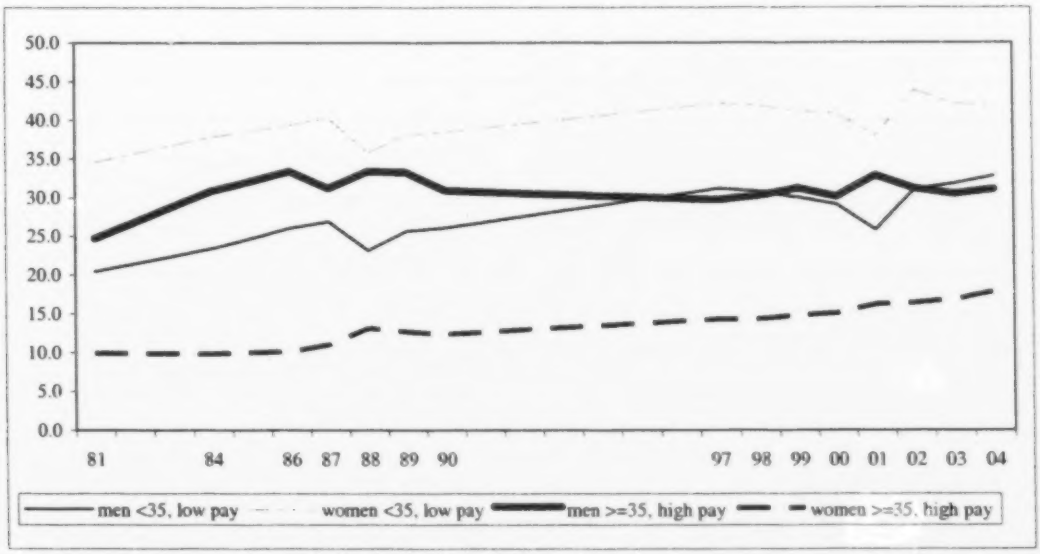
Source : Survey of Work History of 1981; Labour Force Survey of 2004.

Figure 3: Median hourly wages by age, 1981-2004 (1981:100)



Source: Survey of Work History of 1981
Survey of Union Membership of 1984
Labour Market Activity Survey of 1986-1990
Labour Force Survey of 1997-2004.

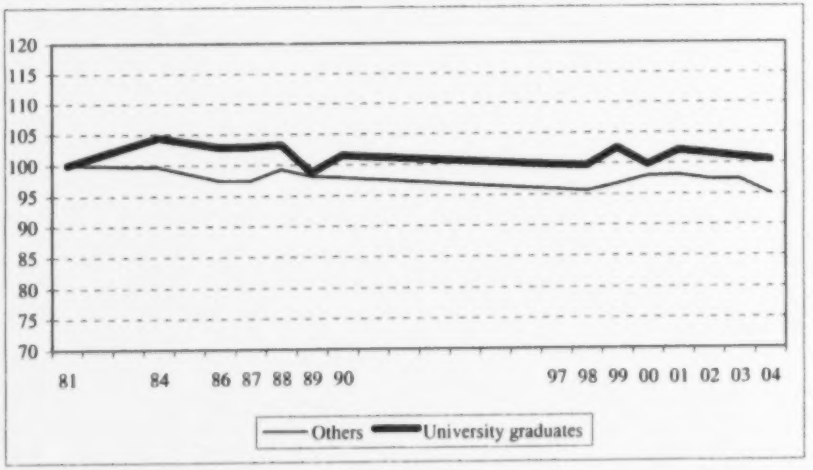
Figure 4: Percentage of employees in low-paid and high-paid jobs, 1981-2004



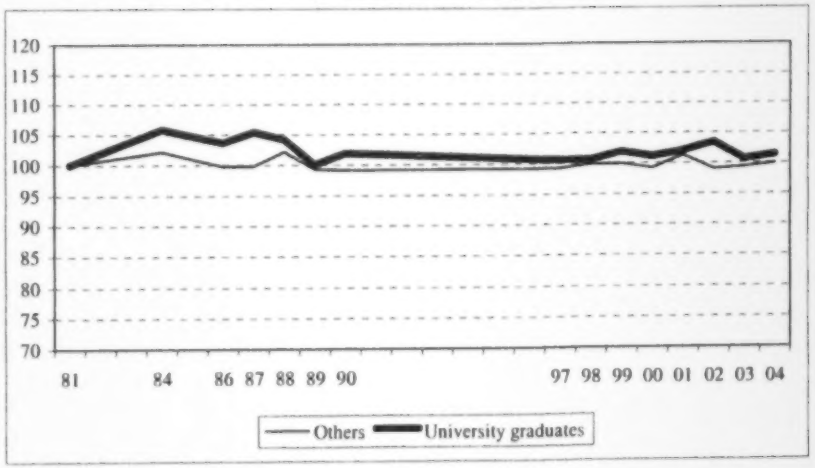
Source: Survey of Work History of 1981
Survey of Union Membership of 1984
Labour Market Activity Survey of 1986-1990
Labour Force Survey of 1997-2004.

Figure 5: Median hourly wages of university graduates and of other employees, 1981-2004 (1981:100)

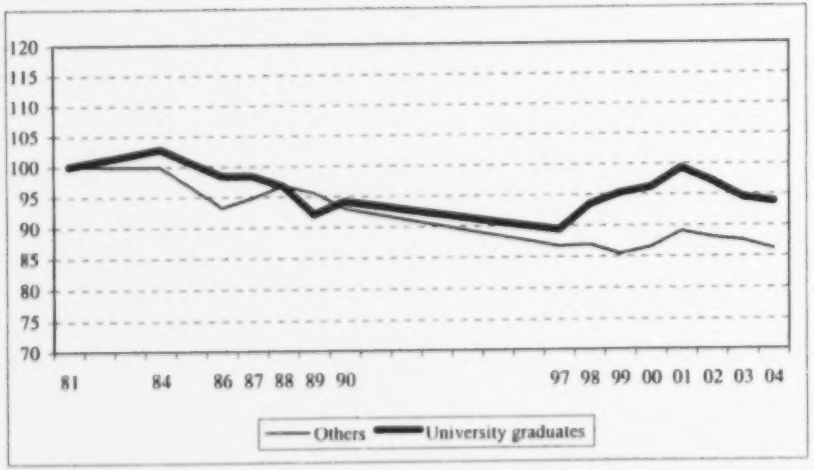
(a) Men and women aged 17-64



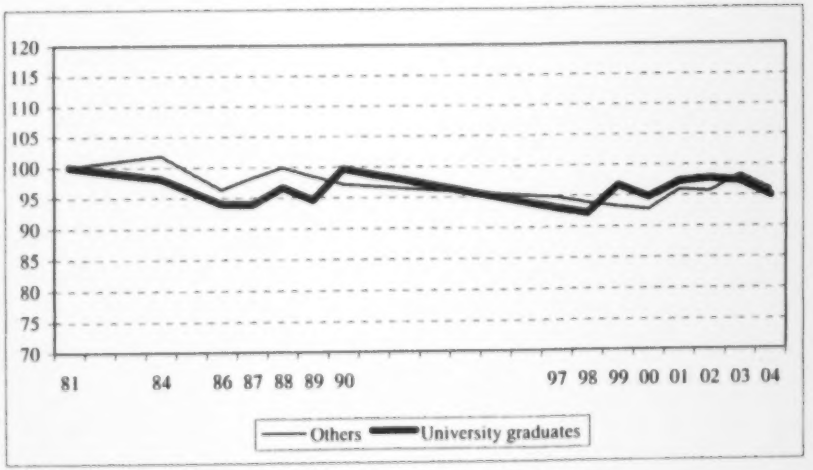
(b) Men and women aged 25-64



(c) Men aged 25-34



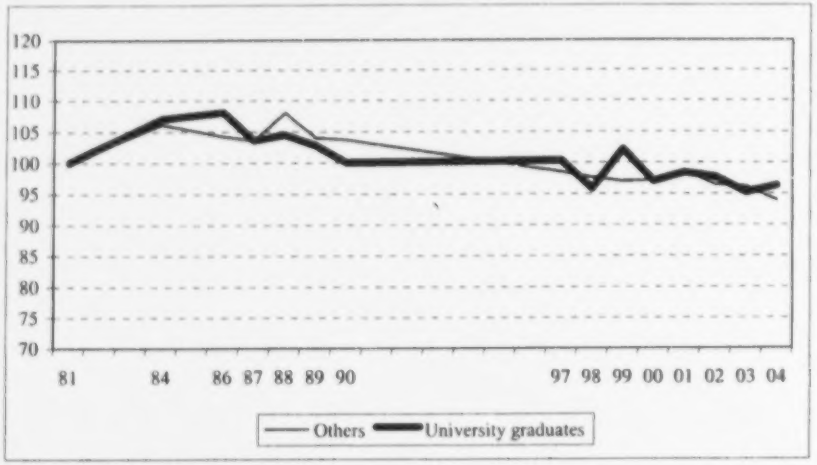
(d) Women aged 25-34



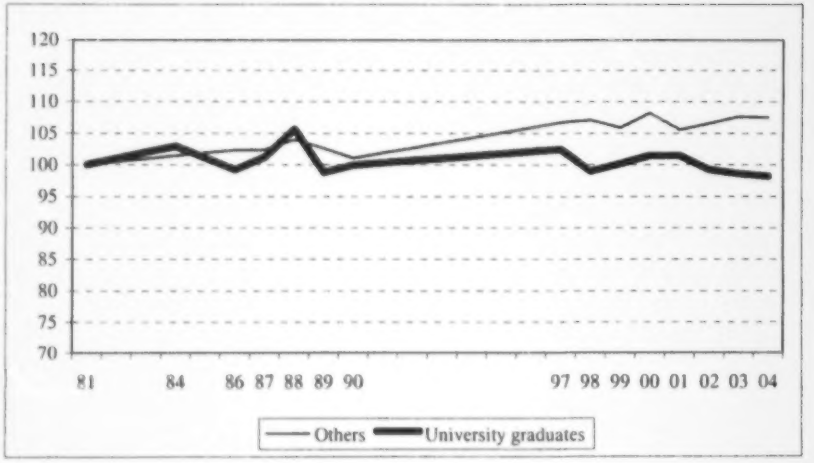
Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 6: Median hourly wages of university graduates and of other employees, 1981-2004 (1981:100)

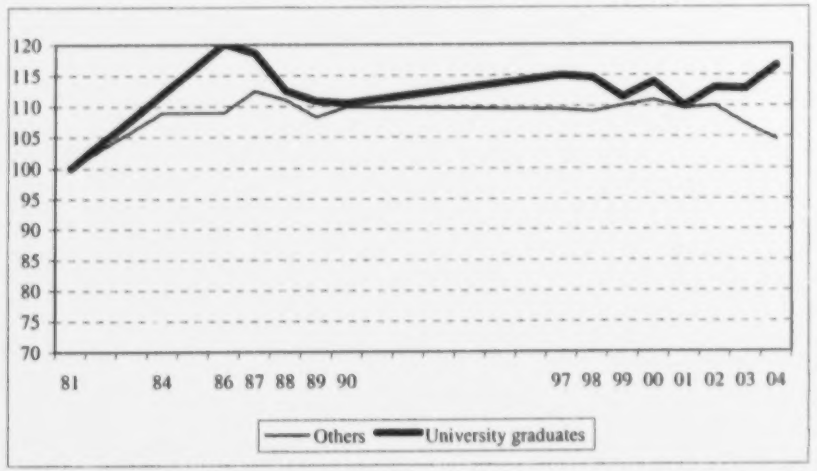
(a) Men aged 35-44



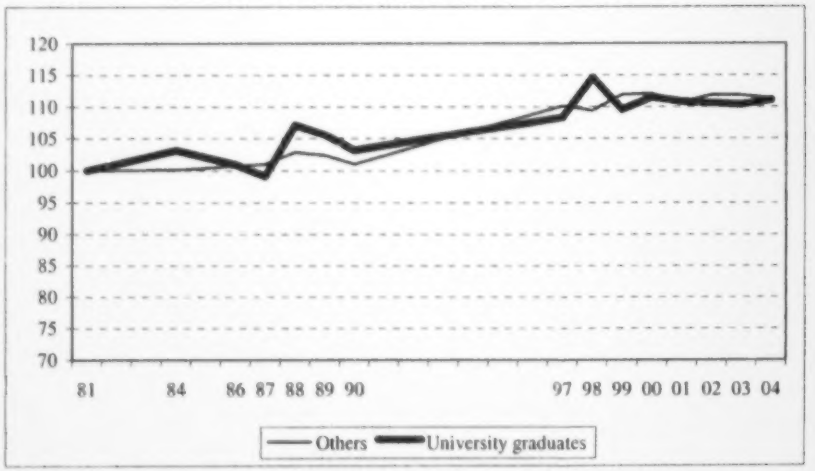
(b) Women aged 35-44



(c) Men aged 45-64



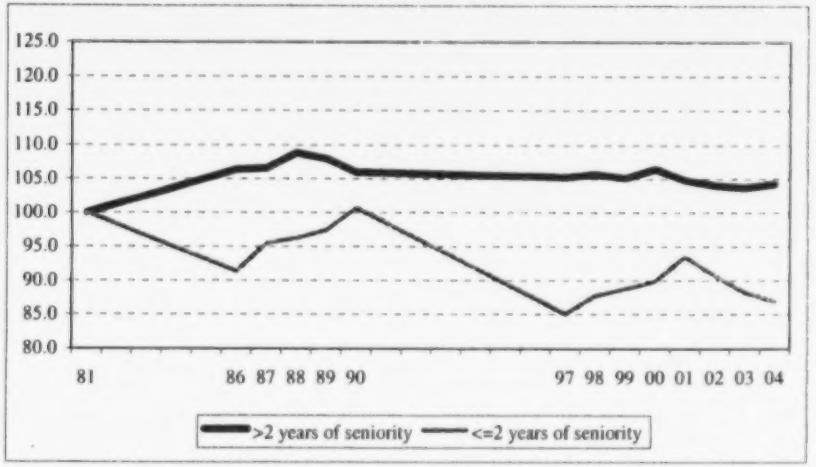
(d) Women aged 45-64



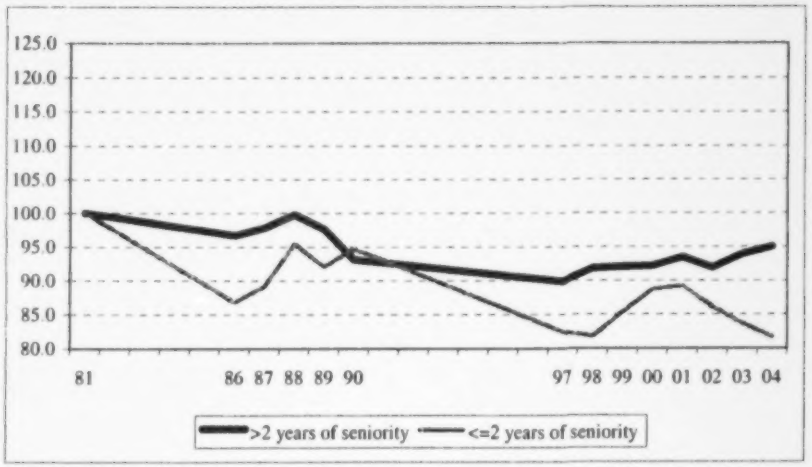
Source: Survey of Work History of 1981; Survey of Union Membership of 1984; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 7: Median hourly wages by seniority, 1981-2004 (1981:100)

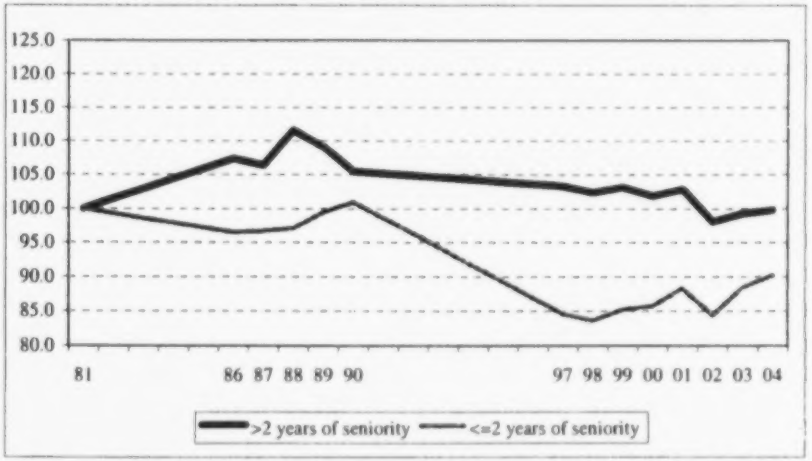
(a) Men aged 25-64



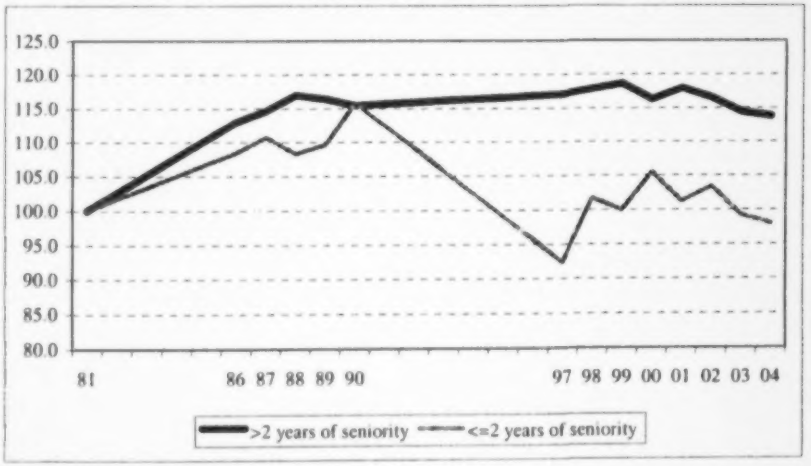
(b) Men aged 25-34



(c) Men aged 35-44



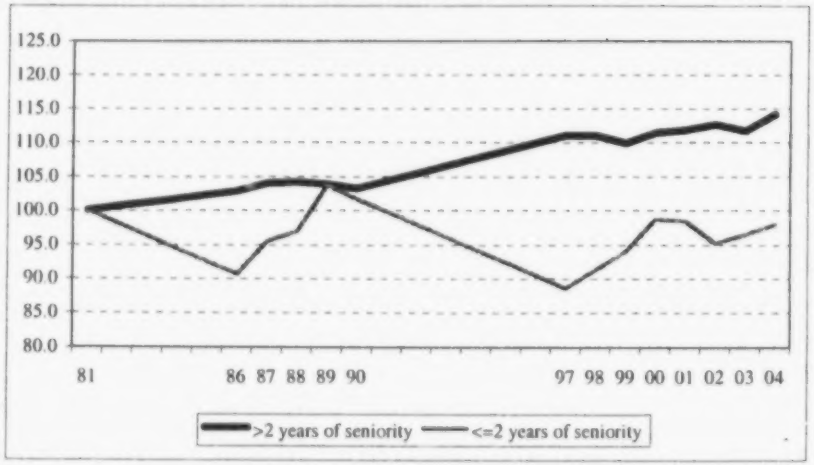
(d) Men aged 45-64



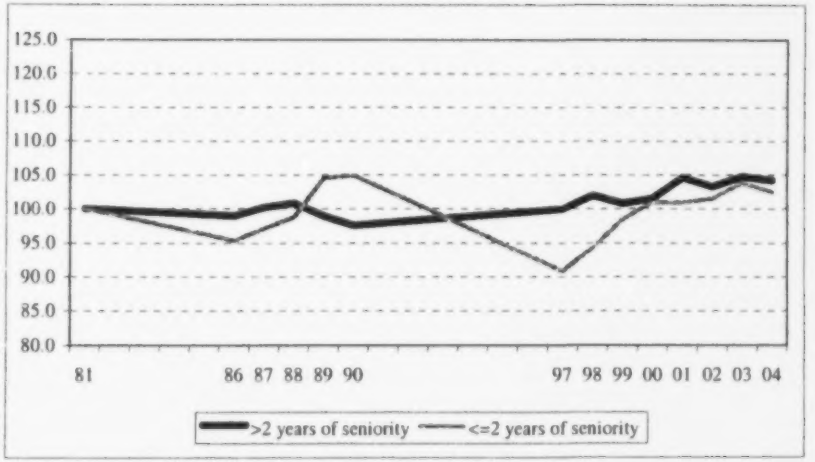
Source: Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 8: Median hourly wages by seniority, 1981-2004 (1981:100)

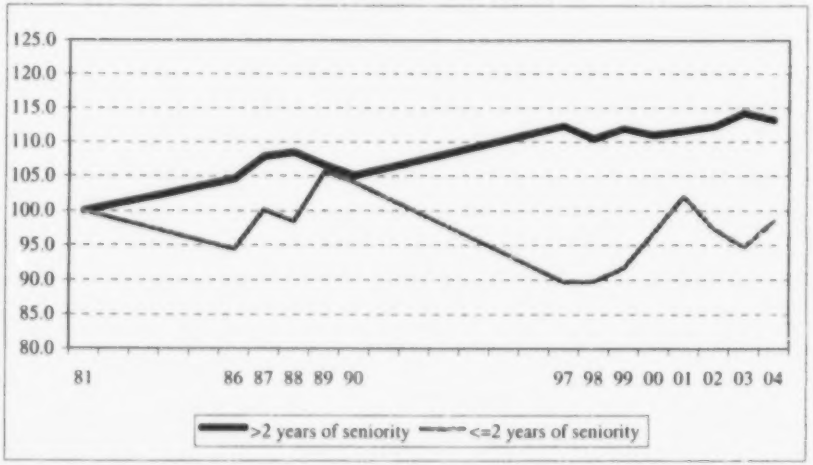
(a) Women aged 25-64



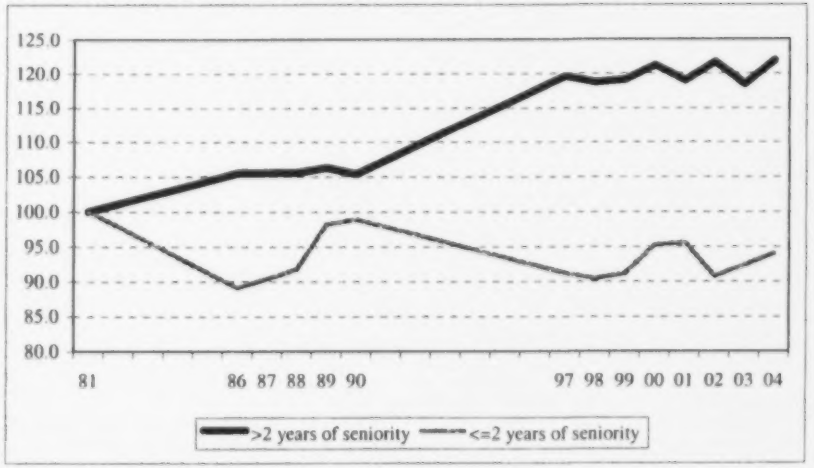
(b) Women aged 25-34



(c) Women aged 35-44



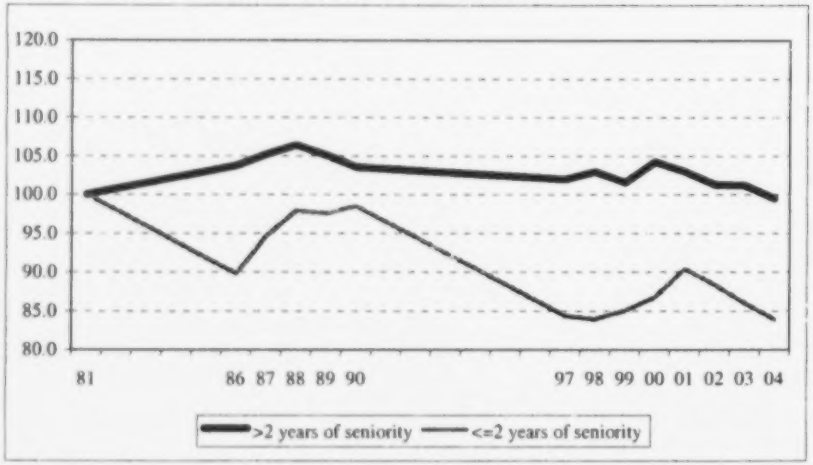
(d) Women aged 45-64



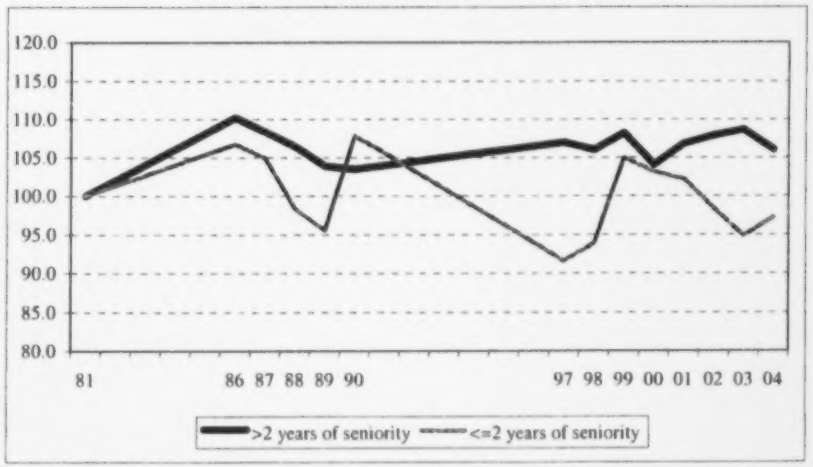
Source: Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 9: Median hourly wages by seniority, 1981-2004 (1981:100)

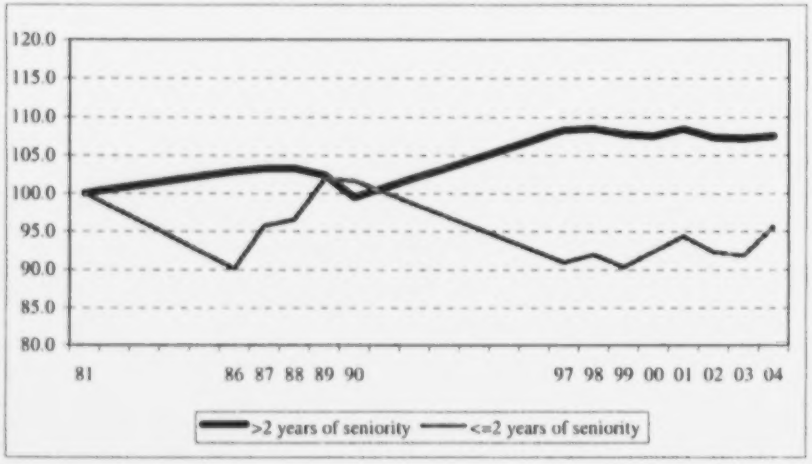
(a) Men aged 25-64 with no university degree



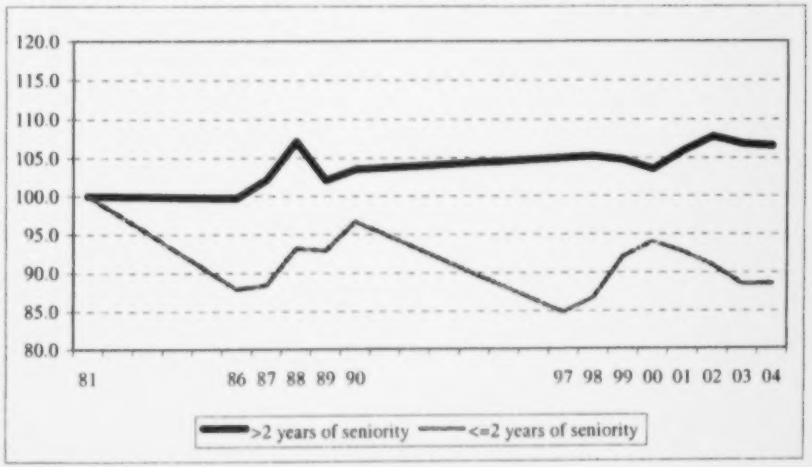
(b) Men aged 25-64 with a university degree



(c) Women aged 25-64 with no university degree



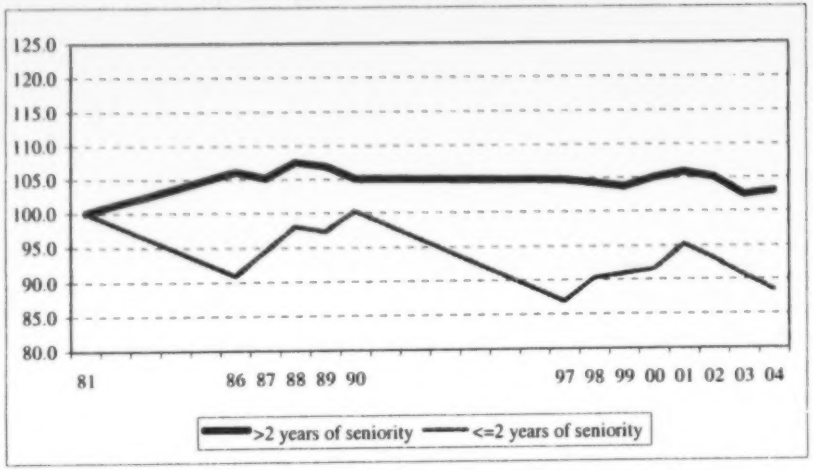
(d) Women aged 25-64 with a university degree



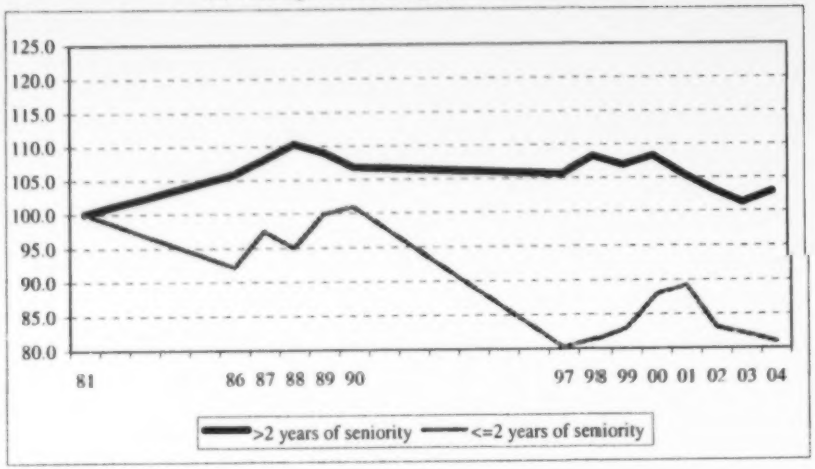
Source: Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 10: Median hourly wages by seniority, 1981-2004 (1981:100)

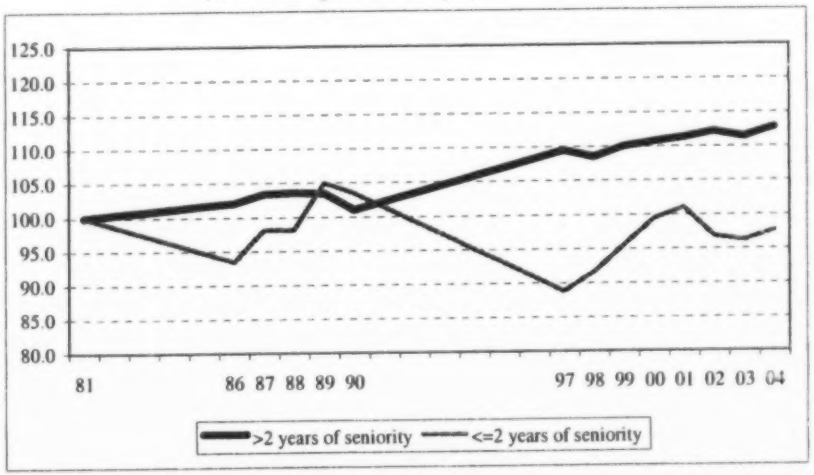
(a) Men aged 25-64 employed outside manufacturing



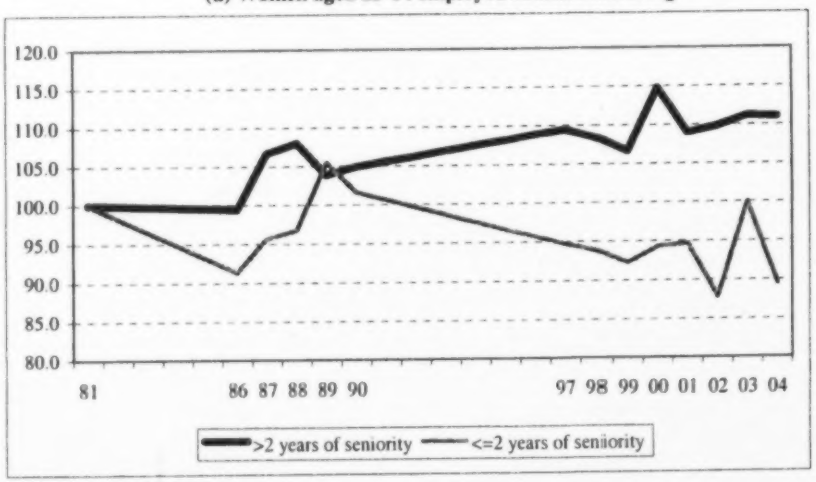
(b) Men aged 25-64 employed in manufacturing



(c) Women aged 25-64 employed outside manufacturing

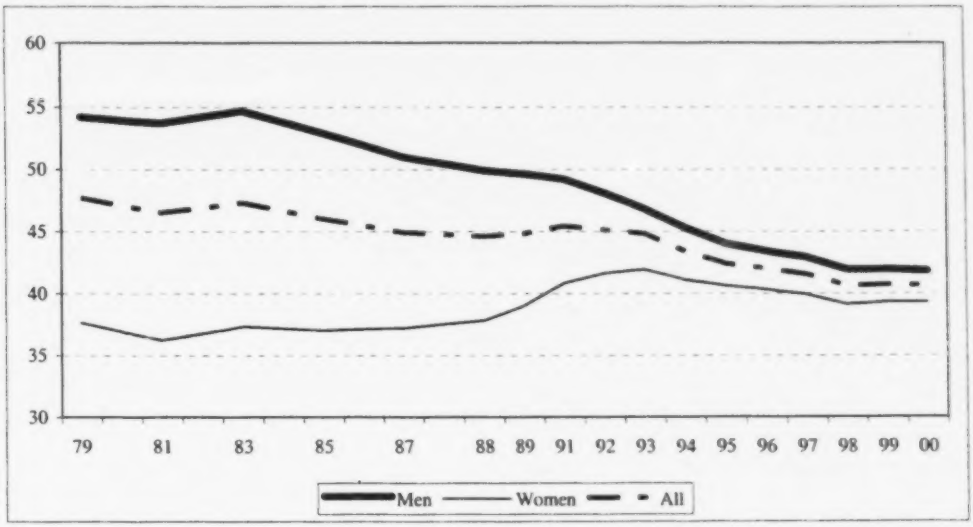


(d) Women aged 25-64 employed in manufacturing



Source: Survey of Work History of 1981; Labour Market Activity Survey of 1986-1990; Labour Force Survey of 1997-2004.

Figure 11: Percentage of employees covered by a RPP, Canada, 1979-2000



Source: Pension Plans in Canada, Cat. 74-401-XIB, various years.

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